National Aeronautics and
Space Administration

Chronological History
Fiscal Year 1982
Budget Submission

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

September 30, 1982

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Item	Statistics	LEGISLATIVE REFERENCE									
		Authorization Page Numbers				Appropriation Page Numbers					
		House Auth Comm	Senate Auth Comm	Conference Comm (Auth)	P.L. 97-96	House Approp Comm	Senate Approp Comm	Conference Comm (Appr)	P.L. 97-101	Urgent Supplement P.L. 97-216	General Supplement P.L. 97-257
Summary by Appropriation	1	9	30	47	---	---	---	---	---	---	---
Research and Development	3	10	32	50	53	56	60	66	68	72/73	72
Space Shuttle	3	10	32	50	---	---	---	---	---	---	---
Space Flight Operations	3	10	35	50	---	---	---	---	---	---	---
Expendable Launch Vehicles	3	---	---	---	---	---	---	---	---	---	---
Physics and Astronomy	3	11	36	50	---	---	---	---	---	---	---
Planetary Exploration	4	12	37	50	---	---	---	---	---	---	---
Life Sciences	4	12	37	50	---	---	---	---	---	---	---
Space Applications	4	13	38	50	---	---	---	---	---	---	---
Technology Utilization	4	13	38	---	---	---	---	---	---	---	---
Aeronautical Research and Technology	4	13	39	51	---	---	---	---	---	---	---
Space Research and Technology	5	14	39	51	---	---	---	---	---	---	---
Energy Technology	5	---	39	51	---	---	---	---	---	---	---
Tracking and Data Acquisition	5	14	39	51	---	---	---	---	---	---	---
Construction of Facilities	5	14/19	40	51	53	57	62	66	68	---	---
Ames Research Center	5	19	40	---	---	---	---	---	---	---	---
Goddard Space Flight Center	5	19	40	---	---	---	---	---	---	---	---
Jet Propulsion Laboratory	5	19	40	---	---	---	---	---	---	---	---
Kennedy Space Center	5	19	40	---	---	---	---	---	---	---	---
Langley Research Center	6	19	40	---	---	---	---	---	---	---	---
Lewis Research Center	6	19	40	---	---	---	---	---	---	---	---
Marshall Space Flight Center	6	19	40	---	---	---	---	---	---	---	---
Various Locations	6	19	40	---	---	---	---	---	---	---	---
Space Shuttle Facilities	7	20	40	---	---	---	---	---	---	---	---
Repair of Facilities	7	20	40	---	---	---	---	---	---	---	---
Rehabilitation and Modification	7	20	40	---	---	---	---	---	---	---	---
Minor Construction	7	20	40	---	---	---	---	---	---	---	---
Facility Planning and Design	7	20	40	---	---	---	---	---	---	---	---
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1982 Budget Submission
(In thousands of dollars)

Item	Initial Budget Submission to Congress	Amended Budget Submission	AUTHORIZATION					APPROPRIATION					
			House Comm. H.R. 1257 Rep. 97-32 5-8-81	House Bill H.R. 1257 Appd. 6-23-81	Sen. Comm. S. 1098 Rep. 97-100 5-15-81 Appd. 5-21-81	Conf. Comm. Appd.11-21-81 H.R. 97-351 P.L. 97-96 Appd.12-21-81	Difference from Amended Budget Submission	House Comm. H.R. 4034 Rep. 97-162 6-25-81	Sen. Comm. H.R. 4034 Rep. 97-163 7-23-81	Conference Committee Approved 9-11-81, Rep. 97-222 P.L. 97-101, Appd. 12-23-81 Basic Appropriation	Conference Committee Approved 9-11-81, Rep. 97-222 P.L. 97-101, Appd. 12-23-81 Effect of Gen. Prov. Sec. 501	Difference from Budget Submission	Difference from Budget Authorization
TOTAL APPROPRIATIONS:													
Research and Development	5,452,600	4,903,100	4,914,900	4,903,700	5,000,000	4,953,780	+50,680	4,938,100	4,994,500	4,973,100	4,740,900	-162,200	-212,880
Construction of Facilities	136,800	104,800	104,120	104,120	104,800	104,120	-680	95,800	104,800	99,800	95,800	-9,000	-8,320
Research and Program Management	1,136,300	1,114,300	1,114,300	1,114,300	1,118,100	1,114,300	---	1,100,000	1,114,300	1,114,300	1,103,300	-11,000	-11,000
GRAND TOTAL	6,725,700	6,122,200	6,133,320	6,122,120	6,222,900	6,172,200	+50,000	6,133,900	6,213,600	6,187,200	5,940,000	-182,200	-232,200
R&D Appropriation:													
OSTS	3,304,200	3,136,100	3,069,100	3,069,100	3,135,100	3,128,100	-8,000	3,136,100	3,135,100	*	*	*	*
OSS	756,700	584,200	614,800	614,800	592,200	592,200	+8,000	584,200	600,900	*	*	*	*
OSTA	487,500	377,500	423,500	423,500	411,200	411,200	+33,700	377,500	408,200	*	*	*	*
OAST	469,000	390,100	407,300	396,100	446,300	414,100	+24,000	390,100	435,100	*	*	*	*
OSTDS	435,200	415,200	400,200	400,200	415,200	408,180	-7,020	415,200	415,200	415,200	*	*	*
Undistributed	---	---	---	---	---	---	---	35,000	---	---	---	---	---
TOTAL, R&D	5,452,600	4,903,100	4,914,900	4,903,700	5,000,000	4,953,780	+50,680	4,938,100	4,994,500	4,973,100	4,740,900	-162,200	-212,880
CoF Appropriation:													
OSTS	21,450	20,050	20,050	20,050	20,050	20,050	---	20,050	20,050	*	*	*	*
OAST	42,310	22,650	22,650	22,650	22,650	22,650	---	22,650	22,650	*	*	*	*
OSTDS	6,900	6,900	6,900	6,900	6,900	6,900	---	6,900	6,900	*	*	*	*
Comptroller	66,140	55,200	54,520	54,520	55,200	54,520	-680	46,200	55,200	*	*	*	*
TOTAL, CoF	136,800	104,800	104,120	104,120	104,800	104,120	-680	95,800	104,800	99,800	95,800	-9,000	-8,320
R&PM Appropriation - Total	1,136,300	1,114,300	1,114,300	1,114,300	1,118,100	1,114,300	---	1,100,000	1,114,300	1,114,300	1,103,300	-11,000	-11,000
TOTAL, NASA	6,725,700	6,122,200	6,133,320	6,122,120	6,222,900	6,172,200	+50,000	6,133,900	6,213,600	6,187,200	5,940,000	-182,200	-232,200

*Undistributed

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Budget Operations Division
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1982 Budget Submission
(In thousands of dollars)

Item	Initial Budget Submission to Congress	AUTHORIZATION: Conf. Comm. H.R. 97-351 11-21-81 P.L. 97-96 Appd. 12-21-81						APPROPRIATION: Comm. Appd. Rep. 97-222 P.L. 97-101 9-11-81 Appd. 12-23-81	Urgent Suppl. H.R. 6685 7-14-82 Rep. 97-632 P.L. 97-216 Appd. 7-18-82[a]	General Suppl. H.R. 6863 8-13-82 Rep. 97-516 P.L. 97-257 Appd. 9-10-82[b]		
TOTAL APPROPRIATIONS:												
Research and Development	5,452,600	4,953,780						4,740,900	4,740,900	4,740,900		
Construction of Facilities	136,800	104,120						95,800	95,800	95,800		
Research and Program Management	1,136,300	1,114,300						1,103,300	1,103,300	1,183,300		
GRAND TOTAL	6,725,700	6,172,200						5,940,000	5,940,000	6,020,000		
R&D Appropriatioin:												
OSTS	3,304,200	3,128,100						*	3,058,800	3,058,800		
OSS	756,700	592,200						*	568,000	568,000		
OSTA	487,500	411,200						*	336,200	336,200		
OAST	469,000	414,100						*	375,800	375,800		
OSTDS	435,200	408,180						*	402,100	402,100		
TOTAL, R&D	5,452,600	4,953,780						4,740,900	4,740,900	4,740,900		
CoF Appropriation:												
OSTS	21,450	20,050						*	*	*		
OAST	42,310	22,650						*	*	*		
OSTDS	6,900	6,900						*	*	*		
Comptroller	66,140	54,520						*	*	*		
TOTAL, CoF	136,800	104,120						95,800	95,800	95,800		
R&PM Appropriation - Total	1,136,300	1,114,300						1,103,300	1,103,300	1,183,300[c]		
TOTAL, NASA	6,725,700	6,172,200						5,940,000	5,940,000	6,020,000		

*Undistributed

a/Redistributed Shuttle funds to other areas. Permitted Administrator upon request and approval of Appropriation Committees to use R&PM or CoF funds provided under P.L. 97-101 to fund Shuttle deficiency.

b/$30M supplemental to cover personnel costs through FY 82; $50M for Shuttle-related R&PM costs, available through FY 83.

c/Provided $80 million for pay, $50 million of which was to replace funds used for Shuttle and which remain available through FY 1983.

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	RESEARCH AND DEVELOPMENT..	5,452,600	4,903,100	4,914,900	4,903,700	5,000,000	4,953,780	+50,680	4,938,100	4,994,500	4,973,100	4,740,900	-162,200	-212,880
253	Space Shuttle.....	2,230,000	2,194,000	2,134,000	2,134,000	2,189,000	2,189,000	-5,000	2,194,000	2,189,000	2,194,000	*	*	*
253	Space Flight Operations.	1,043,000	910,900	903,900	903,900	914,900	907,900	-3,000	910,900	914,900	*	*	*	*
253	Expendable Launch Veh...	31,200	31,200	31,200	31,200	31,200	31,200	---	31,200	31,200	31,200	*	*	*
254	Physics and Astronomy...	451,400	325,400	350,400	350,400	333,400	333,400	+8,000	325,400	340,400	*	*	*	*
254	Planetary Exploration...	256,100	215,300	215,200	215,200	215,300	215,300	---	215,300	217,000	*	*	*	*
254	Life Sciences.....	49,200	43,500	49,200	49,200	43,500	43,500	---	43,500	43,500	43,500	*	*	*
254	Space Applications.....	472,900	372,900	410,900	410,900	398,600	398,600	+25,700	372,900	395,600	*	*	*	*
254	Technology Utilization..	14,600	4,600	12,600	12,600	12,600	12,600	+8,000	4,600	12,600	*	*	*	*
402	Aeronautical Research and Technology.....	323,600	264,800	276,000	264,800	316,000	284,800	+20,000	264,800	309,800	*	*	*	*
254	Space Research and Technology.....	141,000	125,300	129,300	129,300	130,300	129,300	+4,000	125,300	125,300	125,300	*	*	*
254	Energy Technology.....	4,400	---	2,000	2,000	---	---	---	---	---	---	---	---	---
255	Tracking and Data Acq...	435,200	415,200	400,200	400,200	415,200	408,180	-7,020	415,200	415,200	415,200	*	*	*
	Undistributed.....	---	---	---	---	---	---	---	35,000	---	---	---	---	---
	CONSTRUCTION OF FACILITIES	136,800	104,800	104,120	104,120	104,800	104,120	-680	95,800	104,800	99,800	95,800	-9,000	-8,320
	Ames Research Center....	18,500	18,500	18,500	18,500	18,500	18,500	---	18,500	18,500	*	*	*	*
	Goddard Space Flight Center.....	2,500	---	---	---	---	---	---	---	---	*	*	*	*
	Jet Propulsion Laboratory.....	9,300	9,300	9,300	9,300	9,300	9,300	---	1,300	9,300	*	*	*	*
	Lyndon B. Johnson Space Center.....	680	680	680	680	680	680	---	680	680	*	*	*	*
	Kennedy Space Center....	2,560	1,720	1,720	1,720	1,720	1,720	---	1,720	1,720	*	*	*	*
	Langley Research Center.	12,710	2,950	2,950	2,950	2,950	2,950	---	2,950	2,950	*	*	*	*
	Lewis Research Center...	12,200	1,200	1,200	1,200	1,200	1,200	---	1,200	1,200	*	*	*	*
	George C. Marshall Space Flight Center...	1,400	---	---	---	---	---	---	---	---	*	*	*	*
	Various Locations.....	6,900	6,900	6,900	6,900	6,900	6,900	---	6,900	6,900	*	*	*	*
	Space Shuttle Facilities	20,050	20,050	20,050	20,050	20,050	20,050	---	20,050	20,050	*	*	*	*
	Repair.....	15,000	12,800	12,800	12,800	12,800	12,800	---	12,800	12,800	*	*	*	*
	Rehabilitation and Modification.....	20,000	17,700	17,700	17,700	17,700	17,700	---	17,700	17,000	*	*	*	*
	Minor Construction.....	4,000	3,000	2,320	2,320	3,000	2,320	-680	2,000	3,000	*	*	*	*
	Facility Planning and Design.....	11,000	10,000	10,000	10,000	10,000	10,000	---	10,000	10,000	*	*	*	*
	RESEARCH AND PROGRAM MANAGEMENT.....	1,136,300	1,114,300	1,114,300	1,114,300	1,118,100	1,114,300	---	1,100,000	1,114,300	1,114,300	1,103,300	-11,000	-11,000
	TOTAL.....	6,725,700	6,122,200	6,133,320	6,122,120	6,222,900	6,172,200	+50,000	6,133,900	6,213,600	6,187,200	5,940,000	-182,200	-232,200

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Subfunction Code	Item	Initial Budget Submission to Congress	AUTHORIZATION: Conf. Comm. H.R. 97-351 11-21-81 P.L. 97-96 Appd. 12-21-81					APPROPRIATION: Comm. Appd. Rep. 97-222 P.L. 97-101 9-11-81 Appd. 12-23-81	Urgent Suppl. H.R. 6685 7-14-82 Rep. 97-632 P.L. 97-216 Appd. 7-18-82	General Suppl. H.R. 6863 8-13-82 Rep. 97-516 P.L. 97-257 Appd. 9-10-82		
	RESEARCH AND DEVELOPMENT.....	5,452,600	4,953,780					4,740,900	4,740,900	4,740,900		
253	Space Shuttle.....	2,230,000	2,189,000					*	*	*		
253	Space Flight Operations....	1,043,000	907,900					*	*	*		
253	Expendable Launch Vehicles.	31,200	31,200					*	31,200	31,200		
254	Physics and Astronomy.....	451,400	333,400					*	323,500	323,500		
254	Planetary Exploration.....	256,100	215,300					*	205,000	205,000		
254	Life Sciences.....	49,200	43,500					*	39,500	39,500		
254	Space Applications.....	472,900	398,600					*	328,200	328,200		
254	Technology Utilization.....	14,600	12,600					*	8,000	8,000		
402	Aeronautical Research and Technology.....	323,600	284,800					*	264,800	264,800		
254	Space Research and Technology.....	141,000	129,300					*	111,000	111,000		
254	Energy Technology.....	4,400	---						---	---		
255	Tracking and Data Acq.....	435,200	408,180					*	402,100	402,100		
	CONSTRUCTION OF FACILITIES...	136,800	104,120					95,800	95,800	95,800		
	Ames Research Center.....	18,500	18,500					*	*	*		
	Goddard Space Flight Center	2,500	---					*	*	*		
	Jet Propulsion Laboratory..	9,300	9,300					*	*	*		
	Lyndon B. Johnson Space Center.....	680	680					*	*	*		
	Kennedy Space Center.....	2,560	1,720					*	*	*		
	Langley Research Center....	12,710	2,950					*	*	*		
	Lewis Research Center.....	12,200	1,200					*	*	*		
	George C. Marshall Space Flight Center.....	1,400	---					*	*	*		
	Various Locations.....	6,900	6,900					*	*	*		
	Space Shuttle Facilities...	20,050	20,050					*	*	*		
	Repair.....	15,000	12,800					*	*	*		
	Rehabilitation and Modification.....	20,000	17,700					*	*	*		
	Minor Construction.....	4,000	2,320					*	*	*		
	Facility Planning and Design.....	11,000	10,000					*	*	*		
	RESEARCH AND PROGRAM MANAGEMENT.....	1,136,300	1,114,300					1,103,300	1,103,300	1,183,300		
	TOTAL.....	6,725,700	6,172,200					5,940,000	5,940,000	6,020,000		

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	RESEARCH AND DEVELOPMENT..	5,452,600	4,903,100	4,914,900	4,903,700	5,000,000	4,953,780	+50,680	4,938,100	4,994,500	4,973,100	4,740,900	-162,200	-212,880
	OFFICE OF SPACE TRANSPORTATION SYSTEMS..	3,304,200	3,136,100	3,069,100	3,069,100	3,135,100	3,128,100	-8,000	3,136,100	3,135,100	*	*	*	*
253	Space Shuttle.....	2,230,000	2,194,000	2,134,000	2,134,000	2,189,000	2,189,000	-5,000	2,194,000	2,189,000	2,194,000	*	*	*
	Design, Development, Test and Evaluation.....	740,000	740,000	740,000	740,000	740,000	740,000	---	740,000	735,000	740,000	*	*	*
	Orbiter.....	(372,000)	(372,000)	(372,000)	(372,000)	(372,000)	(372,000)	(---)	(372,000)	(367,000)	(372,000)	(*)	(*)	(*)
	Main Engine.....	(127,000)	(127,000)	(127,000)	(127,000)	(127,000)	(127,000)	(---)	(127,000)	(127,000)	(127,000)	(*)	(*)	(*)
	External Tank.....	(25,000)	(25,000)	(25,000)	(25,000)	(25,000)	(25,000)	(---)	(25,000)	(25,000)	(25,000)	(*)	(*)	(*)
	Solid Rocket Booster....	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(17,000)	(---)	(17,000)	(17,000)	(17,000)	(*)	(*)	(*)
	Launch and Landing.....	(199,000)	(199,000)	(199,000)	(199,000)	(199,000)	(199,000)	(---)	(199,000)	(199,000)	(199,000)	(*)	(*)	(*)
	Changes/System Upgrading..	300,000	300,000	240,000[a]	240,000[a]	300,000	300,000	---	300,000	300,000	300,000	*	*	*
	Production.....	1,190,000	1,154,000	1,154,000	1,154,000	1,149,000	1,149,000	-5,000	1,154,000	1,154,000	1,154,000	*	*	*
	Orbiter.....	(873,000)	(837,000)	(837,000)	(837,000)	(832,000)[b]	(832,000)	(-5,000)	(837,000)	(837,000)	(837,000)	(*)	(*)	(*)
	Main Engine.....	(105,000)	(105,000)	(105,000)	(105,000)	(105,000)	(105,000)	(---)	(105,000)	(105,000)	(105,000)	(*)	(*)	(*)
	Launch and Landing.....	(57,000)	(57,000)	(57,000)	(57,000)	(57,000)	(57,000)	(---)	(57,000)	(57,000)	(57,000)	(*)	(*)	(*)
	Spares and Equipment....	(155,000)	(155,000)	(155,000)	(155,000)	(155,000)	(155,000)	(---)	(155,000)	(155,000)	(155,000)	(*)	(*)	(*)
253	Space Flight Operations...	1,043,000	910,900	903,900	903,900	914,900	907,900	-3,000	910,900	914,900	*	*	*	*
	Space Transportation Systems Operational Capability.....	146,200	143,200	144,200[c]	144,200[c]	147,200[c]	*	*	143,200[f]	147,200	*	*	*	*
	Development, Test and Mission Support.....	184,000	184,000	184,000	184,000	184,000	*	*	184,000	184,000	184,000	*	*	*
	Advanced Programs.....	10,800	8,800	13,800[d]	13,800	8,800	12,800	+4,000	8,800[f]	8,800	8,800	*	*	*
	Spacelab.....	140,700	110,700	110,700	110,700	110,700	*	*	110,700	110,700	110,700	*	*	*
	Space Transportation Systems Operations....	561,300	464,200	451,200[e]	451,200[e]	464,200	*	*	464,200	464,200	464,200	*	*	*
253	Expendable Launch Vehicles	31,200	31,200	31,200	31,200	31,200	31,200	---	31,200	31,200	31,200	*	*	*
	Scout.....	800	800	800	800	800	800	---	800	800	800	*	*	*
	Delta.....	30,400	30,400	30,400	30,400	30,400	30,400	---	30,400	30,400	30,400	*	*	*
	OFFICE OF SPACE SCIENCE...	756,700	584,200	614,800	614,800	592,200	592,200	+8,000	584,200	600,900	*	*	*	*
254	Physics and Astronomy.....	451,400	325,400	350,400	350,400	333,400	333,400	+8,000	325,400	340,400	*	*	*	*
	Space Telescope Develop.	119,500	119,500	119,500	119,500	119,500	119,500	---	119,500	119,500	119,500	*	*	*
	International Solar Polar Mission.....	58,000	5,000	20,000	20,000	5,000	5,000	---	5,000[f]	15,000	*	*	*	*
	Gamma Ray Observatory Development.....	52,000	8,000	8,000	8,000	8,000	8,000	---	8,000	8,000	8,000	*	*	*
	Shuttle/Spacelab Payload Development and Mission Management....	31,800	35,000	43,000	43,000	43,000	43,000	+8,000	35,000	40,000	*	*	*	*
	Explorer Development....	36,600	36,600	36,600	36,600	36,600	36,600	---	36,600	36,600	36,600	*	*	*

*Undistributed

a/ House recommended offset to FY 81 NASA proposed $60M reprogramming increase.
b/ Senate reduction for 5th orbiter.
c/ House: $8M added for SEPS, Upper Stages reduced $7M; Senate: SEPS increased $4M over amended request.
d/ $5M added for PEP 25KW, space platforms, and space operations center definition studies and advanced technical development.
e/ $13M reduction for upper stage operations.
f/ Unspecified portion of $35M increase may be applied here.

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

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1982 Budget Submission
(In thousands of dollars)

Subfunction Code	Item	Initial Budget Submission to Congress	AUTHORIZATION: Conf. Comm. H.R. 97-351 11-21-81 P.L. 97-96 Appd. 12-21-81						APPROPRIATION: Comm. Appd. Rep. 97-222 P.L. 97-101 9-11-81 Appd. 12-23-81	Urgent Suppl. H.R. 6685 7-14-82 Rep. 97-632 P.L. 97-216 Appd. 7-18-82	General Suppl. H.R. 6863 8-13-82 Rep. 97-516 P.L. 97-257 Appd. 9-10-82		
	RESEARCH AND DEVELOPMENT.....	5,452,600	4,953,780						4,740,900	4,740,900	4,740,900		
	OFFICE OF SPACE TRANSPORTATION SYSTEMS.....	3,304,200	3,128,100						*	3,058,800	3,058,800		
253	Space Shuttle.....	2,230,000	2,189,000						*	*	*		
	Design, Development, Test and Evaluation.....	740,000	740,000						*	*	*		
	Orbiter.....	(372,000)	(372,000)						(*)	(*)	(*)		
	Main Engine.....	(127,000)	(127,000)						(*)	(*)	(*)		
	External Tank.....	(25,000)	(25,000)						(*)	(*)	(*)		
	Solid Rocket Booster.....	(17,000)	(17,000)						(*)	(*)	(*)		
	Launch and Landing.....	(199,000)	(199,000)						(*)	(*)	(*)		
	Changes/System Upgrading.....	300,000	300,000						*	*	*		
	Production.....	1,190,000	1,149,000						*	*	*		
	Orbiter.....	(873,000)	(832,000)						(*)	(*)	(*)		
	Main Engine.....	(105,000)	(105,000)						(*)	(*)	(*)		
	Launch and Landing.....	(57,000)	(57,000)						(*)	(*)	(*)		
	Spares and Equipment.....	(155,000)	(155,000)						(*)	(*)	(*)		
253	Space Flight Operations.....	1,043,000	907,900						*	*	*		
	Space Transportation Systems Operational Capability.....	146,200	*						*	*	*		
	Development, Test and Mission Support.....	184,000	*						*	*	*		
	Advanced Programs.....	10,800	12,800						*	*	*		
	Spacelab.....	140,700	*						*	*	*		
	Space Transportation Systems Operations.....	561,300	*						*	*	*		
253	Expendable Launch Vehicles...	31,200	31,200						*	31,200	31,200		
	Scout.....	800	800						*	800	800		
	Delta.....	30,400	30,400						*	30,400	30,400		
	OFFICE OF SPACE SCIENCE.....	756,700	592,200						*	568,000	568,000		
254	Physics and Astronomy.....	451,400	333,400						*	323,500	323,500		
	Space Telescope Develop....	119,500	119,500						*	*	*		
	International Solar Polar Mission.....	58,000	5,000						*	*	*		
	Gamma Ray Observatory Development.....	52,000	8,000						*	*	*		
	Shuttle/Spacelab Payload Development and Mission Management.....	51,800	43,000						*	40,000	40,000		
	Explorer Development.....	36,600	36,600						*	*	*		

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				House Comm. H.R. 1257 Rep. 97-32 5-8-81	House Bill H.R. 1257 Appd. 6-23-81	Sen. Comm. S. 1098 Rep. 97-100 5-15-81 Appd. 5-21-81	Conf. Comm. Appd.11-21-81 H.R. 97-351 P.L. 97-96 Appd.12-21-81	Difference from Amended Budget Submission	House Comm. H.R. 4034 Rep. 97-162 6-25-81	Sen. Comm. H.R. 4034 Rep. 97-163 7-23-81	Conference Committee Approved 9-11-81, Rep. 97-222 P.L. 97-101, Appd. 12-23-81 Basic Appropriation	Conference Committee Approved 9-11-81, Rep. 97-222 P.L. 97-101, Appd. 12-23-81 Effect of Gen. Prov. Sec. 501	Difference from Budget Submission	Difference from Budget Authorization
	OFFICE OF SPACE SCIENCE (Cont'd.)													
	Mission Operations and Data Analysis.....	53,500	47,000	47,000	47,000	47,000	47,000	---	47,000	47,000	47,000	*	*	*
	Research and Analysis...	42,500	38,800	38,800	38,800	38,800	38,800	---	38,800	38,800	38,800	*	*	*
	Suborbital Program.....	37,500	35,500	35,500	35,500	35,500	35,500	---	35,500	35,500	35,500	*	*	*
254	Planetary Exploration.....	256,100	215,300	215,200	215,200	215,300	215,300	---	215,300	217,000	*	*	*	*
	Galileo Development.....	108,000	108,000	102,900	102,900	108,000	108,000	---	108,000	108,000	108,000	*	*	*
	Mission Operations and Data Analysis.....	50,900	45,800	45,800	45,800	45,800	45,800	---	45,800	45,800	45,800	*	*	*
	Research and Analysis...	57,200	51,500	51,500	51,500	51,500	51,500	---	51,500[e]	53,200	*	*	*	*
	Venus Orbiting Imaging Radar.....	40,000	10,000	10,000	10,000	10,000	10,000	---	10,000	10,000	10,000	*	*	*
	Halley Comet Intercept Mission.....	---	---	5,000	5,000	---	---	---	---	---	---	---	---	---
254	Life Sciences.....	49,200	43,500	49,200	49,200	43,500	43,500	---	43,500	43,500	43,500	*	*	•
	Life Sciences Flight Experiments.....	16,500	14,000	16,500	16,500	14,000	14,000	---	14,000	14,000	14,000	*	*	*
	Research and Analysis...	32,700	29,500	32,700	32,700	29,500	29,500	---	29,500	29,500	29,500	*	*	*
	OFFICE OF SPACE AND TERRESTRIAL APPLICATIONS	487,500	377,500	423,500	423,500	411,200	411,200	+33,700	377,500	408,200	*	*	*	*
254	Space Applications.....	472,900	372,900	410,900	410,900	398,600	398,600	+25,700	372,900	395,600	*	•	*	*
	Resources Observations..	187,200	165,400	175,400[a]	175,400[a]	165,400	165,400	---	165,400	165,400	165,400	•	*	*
	Environmental Observations.....	194,600	135,300	145,300[b]	145,300[b]	145,300[b]	145,300	+10,000	135,300	145,300	*	*	*	*
	Applications Systems....	14,400	14,200	14,200	14,200	14,200	14,200	---	14,200	14,200	14,200	*	*	*
	Technology Transfer.....	9,000	---	9,000	9,000	8,000	8,000	+8,000	---[e]	5,000	*	*	*	*
	Materials Processing in Space.....	32,100	27,700	31,700	31,700	31,700	31,700	+4,000	27,700	31,700	*	*	*	*
	Space Communications....	35,600	30,300	35,300[c]	35,300[c]	34,000[c]	34,000	+3,700	30,300	34,000	*	*	*	*
254	Technology Utilization....	14,600	4,600	12,600	12,600	12,600	12,600	+8,000	4,600[e]	12,600	*	*	*	*
	Technology Dissemination	4,600	1,500	4,000	4,000	*	*	*	1,500	4,000	*	*	*	*
	Technology Applications.	5,300	2,100	4,500	4,500	*	*	*	2,100	4,500	*	*	*	*
	Program Evaluation and Support.....	1,800	---	1,600	1,600	*	*	•	---	1,600	*	*	*	*
	Civil Systems.....	2,900	1,000	2,500	2,500	*	*	*	1,000	2,500	*	*	*	*
	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY....	469,000	390,100	407,300	396,100	446,300	414,100	+24,000	390,100	435,100	*	*	*	*
402	Aeronautical Research and Technology.....	323,600	264,800	276,000[d]	264,800	316,000[d]	284,800	+20,000	264,800[e]	309,800	*	*	*	*
	Research and Technology Base.....	160,800	157,800	*	157,800	157,800	*	*	157,800	*	*	*	*	*
	Systems Technology Programs.....	162,800	107,000	*	107,000	158,200	*	*	107,000	*	*	*	*	*

*Undistributed

a/ $10M added for GAP.

b/ UAR satellite experiments increased $10M.

c/ House: Search and Rescue Mission increased $5M; Senate: Search and Rescue increased $3.7M.

d/ Alternate fuels and materials $+3M, high speed systems technology $+8M, large composite structures $+4M, high temperature engine core $+4M, prop-fan $+12M, general reduction $19.8M; the Senate added $51.2M for increases to various systems technology programs.

e/ Unspecified portion of $35M increase may be applied here.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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	OFFICE OF SPACE SCIENCE (Cont'd.)												
	Mission Operations and Data Analysis	53,500	47,000						*	*	•		
	Research and Analysis	42,500	38,800						*	*	•		
	Suborbital Program	37,500	35,500						•	•	*		
254	Planetary Exploration	256,100	215,300						*	205,000	205,000		
	Galileo Development	108,000	108,000						*	•	*		
	Mission Operations and Data Analysis	50,900	45,800						*	*	•		
	Research and Analysis	57,200	51,500						•	*	•		
	Venus Orbiting Imaging Radar	40,000	10,000						•	*	*		
	Halley Comet Intercept Mission	---	---						---	---	---		
254	Life Sciences	49,200	43,500						*	39,500	39,500		
	Life Sciences Flight Experiments	16,500	14,000						*	•	•		
	Research and Analysis	32,700	29,500						*	•	•		
	OFFICE OF SPACE AND TERRESTRIAL APPLICATIONS	487,500	411,200						•	336,200	336,200		
254	Space Applications	472,900	398,600						•	328,200	328,200		
	Resources Observation	187,200	165,400						*	*	•		
	Environmental Observations	194,600	145,300						•	*	*		
	Applications Systems	14,400	14,200						•	•	*		
	Technology Transfer	9,000	8,000						•	5,000	5,000		
	Materials Processing in Space	32,100	31,700						*	*	•		
	Space Communications	35,600	34,000						•	*	*		
254	Technology Utilization	14,600	12,600						*	8,000	8,000		
	Technology Dissemination	4,600	•						*	•	*		
	Technology Applications	5,300	*						*	•	*		
	Program Evaluation and Support	1,800	*						*	*	•		
	Civil Systems	2,900	*						•	*	•		
	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY	469,000	414,100						•	375,800	375,800		
402	Aeronautical Research and Technology	323,600	284,800						•	264,800	264,800		
	Research and Technology Base	160,800	*						*	157,800	157,800		
	Systems Technology Programs	162,800	*						*	107,000	107,000		

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	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY (Cont'd.)													
254	Space Research and Technology	141,000	125,300	129,300	129,300	130,300	129,300	+4,000	125,300	125,300	125,300	*	*	*
	Research and Technology Base	124,800	115,300	117,300[a]	117,300[a]	120,300[a]	117,300	+2,000	115,300	115,300	115,300	*	*	*
	Systems Technology Programs	13,200	7,000	9,000[b]	9,000[b]	7,000	9,000	+2,000	7,000	7,000	7,000	*	*	*
	Standards and Practices	3,000	3,000	3,000	3,000	3,000	3,000	---	3,000	3,000	3,000	*	*	*
254	Energy Technology	4,400	---	2,000	2,000	---	---	---	---	---	---	---	---	---
	OFFICE OF SPACE TRACKING AND DATA SYSTEMS	435,200	415,200	400,200	400,200	415,200	408,180	-7,020	415,200	415,200	415,200	*	*	*
255	Tracking and Data Acq.	435,200	415,200	400,200	400,200	415,200	408,180	-7,020	415,200	415,200	415,200	*	*	*
	Operations	309,800	305,500	290,500	290,500	305,500	*	*	305,500	305,500	305,500	*	*	*
	Systems Implementation	112,900	97,200	97,200	97,200	97,200	*	*	97,200	97,200	97,200	*	*	*
	Advanced Systems	12,500	12,500	12,500	12,500	12,500	*	*	12,500	12,500	12,500	*	*	*
UNDISTRIBUTED		---	---	---	---	---	---	---	35,000	---	---	---	---	---
	CONSTRUCTION OF FACILITIES	136,800	104,800	104,120	104,120	104,800	104,120	-680	95,800	104,800	99,800	95,800	-9,000	-8,320
	AMES RESEARCH CENTER	18,500	18,500	18,500	18,500	18,500	18,500	---	18,500	18,500	*	*	*	*
402	R-Modification of 12-Foot Pressure Wind Tunnel	18,500	18,500	18,500	18,500	18,500	18,500	---	18,500	18,500	*	*	*	*
	GODDARD SPACE FLIGHT CENTER	2,500	---	---	---	---	---	---	---	---	*	*	*	*
255	B-Rehabilitation of Modification of Utility Systems	2,500	---	---	---	---	---	---	---	---	*	*	*	*
	JET PROPULSION LABORATORY	9,300	9,300	9,300	9,300	9,300	9,300	---	1,300	9,300	*	*	*	*
255	B-Modifications to Space Flight Operations Facility	9,300	9,300	9,300	9,300	9,300	9,300	---	1,300	9,300	*	*	*	*
	LYNDON B. JOHNSON SPACE CENTER	680	680	680	680	680	680	---	680	680	*	*	*	*
255	B-Rehabilitation of Utility Control System, Various Buildings	680	680	680	680	680	680	---	680	680	*	*	*	*
	JOHN F. KENNEDY SPACE CENTER	2,560	1,720	1,720	1,720	1,720	1,720	---	1,720	1,720	*	*	*	*
255	B-Construction of Waste Material Incinerator	895	895	895	895	895	895	---	895	895	*	*	*	*
255	B-Rehabilitation and Modification of Various Buildings	840	---	---	---	---	---	---	---	---	*	*	*	*
255	B-Repair of Operations and Checkout Building Roof	825	825	825	825	825	825	---	825	825	*	*	*	*

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a/ House: Chemical propulsion technology increased $2M; Senate: Restoration of $5M includes an additional amount of $.2M for space power and electric propulsion.

b/ Information systems technology increased $2M.

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	OFFICE OF AERONAUTICS AND SPACE TECHNOLOGY (Cont'd.)												
254	Space Research and Technology	141,000	129,300						*	111,000	111,000		
	Research and Technology Base	124,800	117,300						*	*	*		
	Systems Technology Programs	13,200	9,000						*	*	*		
	Standards and Practices	3,000	3,000						*	*	*		
254	Energy Technology	4,400	---						---	---	---		
	OFFICE OF SPACE TRACKING AND DATA SYSTEMS	435,200	408,180						*	402,100	402,100		
255	Tracking and Data Acq	435,200	408,180						*	402,100	402,100		
	Operations	309,800	*						*	*	*		
	Systems Implementation	112,900	*						*	*	*		
	Advanced Systems	12,500	*						*	*	*		
	CONSTRUCTION OF FACILITIES	136,800	104,120						95,800	95,800	95,800		
	AMES RESEARCH CENTER	18,500	18,500						*	*	*		
402	R-Modification of 12-Foot Pressure Wind Tunnel	18,500	18,500						*	*	*		
	GODDARD SPACE FLIGHT CENTER	2,500	---						*	*	*		
255	B-Rehabilitation and Modification of Utility Systems	2,500	---						*	*	*		
	JET PROPULSION LABORATORY	9,300	9,300						*	*	*		
255	B-Modifications to Space Flight Operations Facility	9,300	9,300						*	*	*		
	LYNDON B. JOHNSON SPACE CENTER	680	680						*	*	*		
255	B-Rehabilitation of Utility Control System, Various Buildings	680	680						*	*	*		
	JOHN F. KENNEDY SPACE CENTER	2,560	1,720						*	*	*		
255	B-Construction of Waste Material Incinerator	895	895						*	*	*		
255	B-Rehabilitation and Modification of Various Buildings	840	---						*	*	*		
255	B-Repair of Operations and Checkout Building Roof	825	825						*	*	*		

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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(In thousands of dollars)

SubFunction Code	Item	Initial Budget Submission to Congress	Amended Budget Submission	AUTHORIZATION: House Comm. H.R. 1257 Rep. 97-32 5-8-81	AUTHORIZATION: House Bill H.R. 1257 Appd. 6-23-81	AUTHORIZATION: Sen. Comm. S. 1098 Rep. 97-100 5-15-81 Appd. 5-21-81	AUTHORIZATION: Conf. Comm. Appd.11-21-81 H.R. 97-351 P.L. 97-96 Appd.12-21-81	AUTHORIZATION: Difference from Amended Budget Submission	APPROPRIATION: House Comm. H.R. 4034 Rep. 97-162 6-25-81	APPROPRIATION: Sen. Comm. H.R. 4034 Rep. 97-163 7-23-81	APPROPRIATION: Conference Committee Approved 9-11-81, Rep. 97-222 P.L. 97-101, Appd. 12-23-81 Basic Appropriation	APPROPRIATION: Effect of Gen. Prov. Sec. 501	Difference from Budget Submission	Difference from Budget Authorization
	LANGLEY RESEARCH CENTER...	12,710	2,950	2,950	2,950	2,950	2,950	---	2,950	2,950	*	*	*	*
402	R-Modifications for Enhanced 20-Inch Supersonic Wind Tunnel(12470)	2,950	2,950	2,950	2,950	2,950	2,950	---	2,950	2,950	*	*	*	*
402	R-Modifications to Mach 19 Nitrogen Tunnel (1237B).	1,760	---	---	---	---	---	---	---	---	*	*	*	*
402	R-Modifications of Transonic Dynamics Tunnel (648).....	8,000	---	---	---	---	---	---	---	---	*	*	*	*
	LEWIS RESEARCH CENTER.....	12,200	1,200	1,200	1,200	1,200	1,200	---	1,200	1,200	*	*	*	*
255	B-Decommissioning of Plum Brook Station Reactor Facility, Phase II.....	1,100	---	---	---	---	---	---	---	---	*	*	*	*
402	R-Modifications for High Pressure Turbine Corrosion and Thermal Fatigue Testing.....	1,200	1,200	1,200	1,200	1,200	1,200	---	1,200	1,200	*	*	*	*
402	R-Modifications for Small Engine Component Testing (5&23).....	9,900	---	---	---	---	---	---	---	---	*	*	*	*
	GEORGE C. MARSHAL SPACE FLIGHT CENTER.....	1,400	---	---	---	---	---	---	---	---	*	*	*	*
254	M-Modifications for Solar Electric Propulsion Systems Thruster Testing	1,400	---	---	---	---	---	---	---	---	*	*	*	*
	VARIOUS LOCATIONS.....	6,900	6,900	6,900	6,900	6,900	6,900	---	6,900	6,900	*	*	*	*
255	T-Modification and Relocation of 26-Meter Antenna, STDN, Goldstone, Calif. (JPL).	4,700	4,700	4,700	4,700	4,700	4,700	---	4,700	4,700	*	*	*	*
255	T-Relocation of the DSS-44 Antenna to Tidbinbilla, Australia (JPL).....	2,200	2,200	2,200	2,200	2,200	2,200	---	2,200	2,200	*	*	*	*

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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	LANGLEY RESEARCH CENTER.....	12,710	2,950					*	*	*		
402	R-Modifications for Enhanced 20-Inch Supersonic Wind Tunnel (12470).....	2,950	2,950					*	*	*		
402	R-Modifications to Mach 19 Nitrogen Tunnel (1237B)....	1,760	---					*	*	*		
402	R-Modifications of Transonic Dynamics Tunnel (648).....	8,000	---					*	*	*		
	LEWIS RESEARCH CENTER.....	12,200	1,200					*	*	*		
255	B-Decommissioning of Plum Brook Station Reactor Facility, Phase II.....	1,100	---					*	*	*		
402	R-Modifications for High Pressure Turbine Corrosion and Thermal Fatigue Testing	1,200	1,200					*	*	*		
402	R-Modifications for Small Engine Component Testing (5&23).....	9,900	---					*	*	*		
	GEORGE C. MARSHALL SPACE FLIGHT CENTER.....	1,400	---					*	*	*		
254	M-Modifications for Solar Electric Propulsion Systems Thruster Testing.....	1,400	---					*	*	*		
	VARIOUS LOCATIONS.....	6,900	6,900					*	*	*		
255	T-Modifications and Relocation of 26-Meter Antenna, STDN, Goldstone, Calif.(JPL)	4,700	4,700					*	*	*		
255	T-Relocation of the DSS-44 Antenna to Tidbinbilla, Australia (JPL).....	2,200	2,200					*	*	*		

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	SPACE SHUTTLE FACILITIES..	20,050	20,050	20,050	20,050	20,050	20,050	---	20,050	20,050	*	*	*	*
253	M-Construction of Solid Rocket Booster Processing and Segment and Storage Facilities (KSC).....	12,400	12,400	12,400	12,400	12,400	12,400	---	12,400	12,400	*	*	*	*
253	M-Modifications to Firing Rooms (KSC).....	3,100	3,100	3,100	3,100	3,100	3,100	---	3,100	3,100	*	*	*	*
253	M-Modification of Manufacturing and Final Assembly Facilities for External Tanks (MAF)....	2,785	2,785	2,785	2,785	2,785	2,785	---	2,785	2,785	*	*	*	*
253	M-Modifications to Building 30 for Shuttle Operations.....	650	650	650	650	650	650	---	650	650	*	*	*	*
253	M-Minor Shuttle-Unique Projects (Various Locations).....	1,115	1,115	1,115	1,115	1,115	1,115	---	1,115	1,115	*	*	*	*
255	B-REPAIR OF FACILITIES....	15,000	12,800	12,800	12,800	*12,800	12,800	---	12,800	12,800	*	*	*	*
255	B-REHABILITATION AND MODIFICATION OF FACILITIES.....	20,000	17,700	17,700	17,700	17,700	17,700	---	17,700	17,700	*	*	*	*
255	B-MINOR CONSTRUCTION OF NEW FACILITIES AND ADDITIONS.....	4,000	3,000	2,320[a/]	2,320[a/]	3,000	2,320	-680	2,000	3,000	*	*	*	*
255	B-FACILITY PLANNING AND DESIGN.....	11,000	10,000	10,000	10,000	10,000	10,000	---	10,000	10,000	*	*	*	*
	RESEARCH AND PROGRAM MANAGEMENT.....	1,136,300	1,114,300	1,114,300	1,114,300	1,118,100	1,114,300	---	1,100,000	1,114,300	1,114,300	1,103,300	-11,000	-11,000
	BY INSTALLATION:													
	Johnson Space Center.....	180,411	180,411	180,411	180,411	*	180,411	---	*	180,411	180,411	*	*	*
	Kennedy Space Center.....	162,960	162,960	162,960	162,960	*	162,960	---	*	162,960	162,960	*	*	*
	Marshall Space Flight Center.....	171,150	171,150	171,150	171,150	*	171,150	---	*	171,150	171,150	*	*	*
	National Space Technology Laboratories.....	5,624	5,624	5,624	5,624	*	5,624	---	*	5,624	5,624	*	*	*
	Goddard Space Flight Center.....	151,605	151,605	151,605	151,605	*	151,605	---	*	151,605	151,605	*	*	*
	Wallops Flight Center.....	20,414	20,414	20,414	20,414	*	20,414	---	*	20,414	20,414	*	*	*

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a/ Delete three NSTL projects (see pg. 14)

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Chronological History of the FY 1982 Budget Submission
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	SPACE SHUTTLE FACILITIES.....	20,050	20,050					*	*	*		
253	M-Construction of Solid Rocket Booster Processing and Segment and Storage Facilities (KSC).....	12,400	12,400					*	*	*		
253	M-Modifications to Firing Rooms (KSC).....	3,100	3,100					*	*	*		
253	M-Modification of Manufacturing and Final Assembly Facilities for External Tanks (MAF).....	2,785	2,785					*	*	*		
253	M-Modifications to Building 30 for Shuttle Operations..	650	650					*	*	*		
253	M-Minor Shuttle-Unique Projects (Various Locations)	1,115	1,115					*	*	*		
255	B-REPAIR OF FACILITIES.....	15,000	12,800					*	*	*		
255	B-REHABILITATION AND MODIFICATION OF FACILITIES.	20,000	17,700					*	*	*		
255	B-MINOR CONSTRUCTION OF NEW FACILITIES AND ADDITIONS	4,000	2,320					*	*	*		
255	B-FACILITY PLANNING AND DESIGN.....	11,000	10,000					*	*	*		
	RESEARCH AND PROGRAM MANAGEMENT.....	1,136,300	1,114,300					1,103,300	1,103,300	1,183,300		
	BY INSTALLATION:											
	Johnson Space Center.....	180,411	180,411					*	*	*		
	Kennedy Space Center.....	162,960	162,960					*	*	*		
	Marshall Space Flight Center.	171,150	171,150					*	*	*		
	National Space Technology Laboratories.....	5,624	5,624					*	*	*		
	Goddard Space Flight Center..	151,605	151,605					*	*	*		
	Wallops Flight Center.....	20,414	20,414					*	*	*		

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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RESEARCH AND PROGRAM MANAGEMENT (Cont'd.)													
Ames Research Center.....	77,921	77,921	77,921	77,921	*	77,921	---	*	77,921	77,921	*	*	*
Dryden Flight Research Center.....	23,767	23,767	23,767	23,767	*	23,767	---	*	23,767	23,767	*	*	*
Langley Research Center...	127,620	127,620	127,620	127,620	*	127,620	---	*	127,620	127,620	*	*	*
Lewis Research Center.....	108,036	108,036	108,036	108,036	*	108,036	---	*	108,036	108,036	*	*	*
Headquarters.....	106,792	106,792	106,792	106,792	*	106,792	---	*	106,792	106,792	*	*	*
Proposed Reduction in Budget Estimates.....	---	-22,000	-22,000	-22,000	-18,200	-22,000	---	-36,300[a/]	-22,000	-22,000	*	*	*
BY FUNCTION:													
Personnel and Related Costs.....	820,342	799,634	799,634	799,634	*	799,634	---	*	*	*	*	*	*
Travel.....	26,292	25,000	25,000	25,000	*	25,000	---	*	*	*	*	*	*
Facilities Services.....	157,890	157,890	157,890	157,890	*	157,890	---	*	*	*	*	*	*
Technical Services.....	51,611	51,611	51,611	51,611	*	51,611	---	*	*	*	*	*	*
Management and Operations Support....	80,165	80,165	80,165	80,165	*	80,165	---	*	*	*	*	*	*

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a/ Includes a $14.3M reduction to be applied to contractual and consultant services, travel and public affairs and personnel costs.

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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RESEARCH AND PROGRAM MANAGEMENT (Cont'd.												
Ames Research Center	77,921	77,791						*	*	*		
Dryden Flight Research Center	23,767	23,767						*	*	*		
Langley Research Center	127,620	127,620						*	*	*		
Lewis Research Center	108,036	108,036						*	*	*		
Headquarters	106,792	106,792						*	*	*		
Proposed Reduction in Budget Estimates	---	-22,000						*	*	*		
BY FUNCTION:												
Personnel and Related Costs	820,342	799,634						*	*	*		
Travel	26,292	25,000						*	*	*		
Facilities Services	157,890	157,890						*	*	*		
Technical Services	51,611	51,611						*	*	*		
Management and Operations Support.	80,165	80,165						*	*	*		

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Comptroller
Budget Operations Division
Code BTF-3 Ext. 58466

97TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
1st Session } { No. 97-32

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION FOR FISCAL YEAR 1982

MAY 8, 1981.—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

together with

MINORITY VIEWS

[To accompany H.R. 1257]

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

The Committee on Science and Technology, to whom was referred the bill (H.R. 1257) 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 amendments (shown in italic in the bill accompanied by this report) and recommend that the bill, as amended, do pass.

The amendments are as follows:

Page 2, line 1, strike out "$2,230,000,000" and insert "$2,134,000,000".
Page 2, line 2, strike out "$1,043,000,000" and insert "$903,900,000".
Page 2, line 4, strike out "$451,400,000" and insert "$350,400,000".
Page 2, line 5, strike out "$256,100,000" and insert "$215,200,000".
Page 2, line 7, strike out "$472,900,000" and insert "$410,900,000".
Page 2, line 8, strike out "$14,600,000" and insert "$12,600,000".
Page 2, line 10, strike out "$323,600,000" and insert "$276,000,000".
Page 2, line 12, strike out "$141,000,000" and insert "$129,300,000".
Page 2, line 13, strike out "$4,400,000" and insert "$2,000,000".
Page 2, line 14, strike out "$435,200,000" and insert "$400,200,000".
Page 2, strike out lines 19 and 20.
Page 2, line 21, strike out "(3)" and insert "(2)".
Page 2, line 23, strike out "(4)" and insert "(3)".

Page 3, line 1, strike out "(5)" and insert "(4)".
Page 3, strike out lines 3 and 4.
Page 3, line 5, strike out "(7)" and insert "(5)".
Page 3, line 7, strike out "(8)" and insert "(6)".
Page 3, strike out lines 9 through 15.
Page 3, line 16, strike out "(12)" and insert "(7)".
Page 3, strike out lines 19 through 23.
Page 3, line 24, strike out "(15)" and insert "(8)".
Page 4, line 1, strike out "(16)" and insert "(9)".
Page 4, line 3, strike out "(17)" and insert "(10)".
Page 4, line 18, strike out "(18)" and insert "(11)".
Page 4, line 19, strike out "$15,000,000" and insert "$12,800,000".
Page 4, line 20, strike out "(19)" and insert "(12)".
Page 4, line 22, strike out "$20,000,000" and insert "$17,700,000".
Page 4, line 23, strike out "(20)" and insert "(13)".
Page 4, line 25, strike out "$4,000,000" and insert "$2,320,000".
Page 5, line 1, strike out "(21)" and insert "(14)".
Page 5, line 2, strike out "$11,000,000" and insert "$10,000,000".
Page 5, line 4, strike out "$1,136,300,000" and insert "$1,114,300,000".
Page 5, line 10, insert "which" before "may".
Page 5, line 14, strike out "purposes" and insert "purpose".
Page 6, line 10, strike out "when" and insert "When".
Page 7, line 9, strike out "(20)" and insert "(13)".
Page 8, line 2, strike out "(21)" and insert "(14)".
Page 8, line 17, strike out "expanded" and insert "expended".
Page 11, line 8, strike out the comma after "launched".
Page 11, strike out lines 11 through 17 and insert the following:

"(1) The use or manufacture of any patented invention incorporated in a space vehicle launched by the United States Government for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent for such use or manufacture."

Page 11, after line 20, insert the following new sections:

SEC. 9. Appropriations hereby authorized for space transportation system upper stages in section 1(a)(2) shall not be used to initiate sole-source procurement of a new upper stage until NASA in cooperation with other agencies has reviewed alternative systems, assessed competitive procurement of a new upper stage to satify national requirements, and reported findings to the authorizing committees of the House of Representatives and the Senate.

SEC. 10. Of the appropriations authorized for planetary exploration in section 1(a)(5) up to $5,000,000 may be used for the purpose of a mission to intercept and observe Halley's Comet, but only to the extent that such funds are formally requested in a written message from the Administrator transmitted to the House of Representatives and the Senate.

Page 11, line 21, strike out "9" and insert "11".

PURPOSE OF THE BILL

The purpose of the bill is to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1982 as follows:

Programs	Authorization fiscal year 1982	Page No.
Research and development	4, 914, 900, 000	27
Construction of facilities	104, 120, 000	191
Research and program management	1, 114, 300, 000	203
Total	6, 133, 320, 000	

COMMITTEE ACTIONS

RESEARCH AND DEVELOPMENT

SPACE SHUTTLE

In January 1981, NASA requested $2,230,000,000 for the Space Shuttle program in fiscal year 1982. The funds will support the Shuttle design, development, test and evaluation activities, changes/system upgrading activities, and production activities for a four orbiter fleet. On January 28, the NASA Acting Administrator testified that the budget request provided adequate amounts for the development of an operational capability for the Space Transportation System.

The NASA fiscal year 1982 budget amendment submitted to Congress in March 1981 proposed reductions of $36,000,000 in production activities which would reduce the funds available for long-lead procurement of materials for the fifth orbiter and would delay the delivery of the orbital maneuvering system payload kit. As part of the revised budget request in March, NASA also submitted a reprogramming action providing $60,000,000 in supplemental funds for changes/system upgrading activities in fiscal year 1981.

The Committee approved the reprogramming of $60,000,000 in supplemental funds for Space Shuttle changes/systems upgrading in fiscal year 1981 but reduced the fiscal year 1982 funds for changes/systems upgrading activities by an identical amount of $60,000,000. The net effect of this action is to provide $300,000,000 for use in space shuttle changes/systems upgrading through the end of fiscal year 1982, an amount which NASA in January testimony before the Committee indicated was adequate.

The Committee also adopted the 1982 reduction of $36,000,000 in space shuttle production activities as proposed in the budget amendment resulting in a total recommended authorization of $2,134,000,000 in fiscal year 1982 for the Space Shuttle program.

SPACE FLIGHT OPERATIONS

In January 1981, NASA requested $1,043,000,000 for space flight operations programs in fiscal year 1982. The NASA fiscal year 1981 budget amendment proposed reductions of $132,100,000 as follows: $3,000,000 for space transportation systems operations capability development; $2,000,000 for advanced programs; $30,000,000 for spacelab; and $97,100,000 for space transportation systems operations activities resulting in a revised request of $910,900,000. The Committee disagrees in part and recommends a total authorization of $903,900,000 for space flight operations programs in fiscal year 1982 which reflects a net reduction of $139,100,000 from the original request.

Space Transportation Systems Operations Capability Development.—The NASA revised fiscal year 1982 request for space transportation systems operations capability development activities is $143,200,000. The budget amendment reflects an increase of $15,000,000 for space transportation systems upper stages and a decrease of $18,000,000 which would cancel the development of the solar electric propulsion system.

The revised request includes development funds for a sole source procurement of a modified Centaur stage for planetary mission requirements. The Committee recommends a reduction of $7,000,000 in space transportation systems upper stage and requests that NASA in cooperation with other agencies reassess the national requirements for a new upper stage, review the ability of a modified Centaur and alternate systems to meet these requirements, and reconsider the sole source procurement approach. The Committee insists that the new Administrator be fully accountable for the validity of decisions related to development of a new upper stage.

The changes recommended by the Committee result in a total recommended authorization of $68,000,000 for space transportation upper stage development activities in fiscal year 1982.

The Committee also included $8,000,000 which would continue solar electric propulsion advanced technical development and design activities but would delay system development.

The total recommended authorization for Space Transportation Systems Operations capability development in fiscal year 1982 is $144,200,000.

Advanced Programs.—The fiscal year 1982 budget amendment reflects a reduction of $2 million in advanced programs. Specific tasks impacted are the orbital transfer vehicle, advanced upper stage effort, and advanced systems relating to operations in geostationary orbit which would be deferred to future years. The principal effort supporting potential future initiatives would be reduced, thus providing support to only one or two of the highest priority candidates, and deferring other potential new initiative study and advanced development to future years.

This request reflects a significant decrease from $13,000,000 in fiscal year 1980. The Committee again views with concern NASA's lack of emphasis on this activity which is vital to long range planning for future space opportunities. The Committee disagrees with the proposed reduction and recommends an additional increase of $3,000,000 for advanced program studies in fiscal year 1982 and directs that these additional funds be used to support enhanced definition studies and technical development for the power extension package, the 25kw power module, space platforms, and a space operations center. The total recommended authorization for Advanced Programs in fiscal year 1982 is $13,800,000.

Spacelab.—The fiscal year 1982 amended budget continues the development of the crew transfer tunnel and the Spacelab simulator; fabrication of the Spacelab vertification flight instrumentation equipment; manufacture of ground support equipment; and integration of the flight hardware for the first Spacelab missions. The budget amendment reflects a stretch-out in the procurement of the second set of

flight elements being procured from the European Space Agency as well as a delay in the initial set of spare hardware needed to support early Spacelab flights. The immediate result of the budget amendment is a delay in the launch of Spacelab 1 and Spacelab 2. The Committee recommends adoption of the revised request resulting in an authorization of $110,700,000 for Spacelab activities in fiscal year 1982.

Space Transportation System Operations.—The NASA revised fiscal year 1982 request for space transportation system operations activities is $464,200,000. The amended budget provides external tanks, solid rocket boosters and other efforts needed for early Shuttle operational missions beginning in late 1982. The budget amendment reducing Shuttle operations will reduce the flight rate build up in the space transportation system early flight mission plan. Shuttle operations and payload support operations requirements have been rephased to be consistent with the reduction. The reductions in the budget request for upper stage operations result from termination of procurement of three-stage inertial upper stage hardware and the rephasing of missions requiring an upper stage. Funds for initiation of hardware procurement to support the Centaur upper stage consistent with a revised schedule were included in the budget amendment.

The Committee recommends an additional reduction of $13,000,000 for upper stage operations to delay initiation of hardware procurement for Centaur upper stages. Therefore, the Committee recommends an authorization of $27,000,000 for upper stage operations and a total authorization of $451,200,000 for space transportation system operations in fiscal year 1982.

PHYSICS AND ASTRONOMY PROGRAM

In January 1981, NASA requested $451,400,000 for physics and astronomy programs in fiscal year 1982. The NASA fiscal year 1982 budget amendment proposed reductions of $126,000,000 as follows: $53,000,000 for the International Solar Polar mission; $44,000,000 for the Gamma Ray Observatory; $16,800,000 for Shuttle/Spacelab payload development and mission management; $6,500,000 for mission operations and data analysis; $3,700,000 for research and analysis; $2,000,000 for suborbital programs. The Committee disagrees in part and recommends a total authorization of $350,400,000 in fiscal year 1982 which reflects a reduction of $101,000,000 from the original request.

International Solar Polar Mission (ISPM).—The NASA revised fiscal year 1982 request for ISPM was $5,000,000, reflecting a decrease of $53,000,000 from the original request and a decision to terminate the development of the U.S. spacecraft for the mission. ISPM was planned to consist of two spacecraft with the second spacecraft being provided by the European Space Agency.

The Committee rejects the unilateral cancellation of the United States spacecraft mission. This cancellation proposal was made without consulting either the Congress or the European Space Agency which is comprised of eleven European countries. Thus, this short-term budgetary action would have consequences not only on our ulti-

mate understanding of how the sun affects weather and communications here on earth but also on our relations with the Europeans with whom we have been cooperating. The proposal to reduce the FY 1982 request to $5,000,000 would leave funds only for development of United States instruments scheduled to fly on the spacecraft which the Europeans are building. In other words, the proposed reduction would cancel the U.S. spacecraft and eliminate the flight opportunity for the four European instruments planned for the United States spacecraft (out of a total of nine) while presuming that our instruments would fly on the European spacecraft as planned. The Committee recommends that a United States spacecraft development be continued at a pace for a 1986 launch. Thus, the Committee recommends reducing the pending request by $38,000,000, leaving $20,000,000 for ISPM which will allow the continued orderly development of a two-spacecraft mission.

Shuttle/Spacelab Payload Development and Mission Management.—NASA requested $51,800,000 for Shuttle/Spacelab payload development and mission management in fiscal year 1982 and amended the request to $35,000,000 reflecting a reduction of $16,800,000. The reductions would have delayed the launches of Spacelab 1 and 2 as well as eliminated the fiscal year 1982 effort on physics and astronomy instrument development. Agreeing in part with the amendment, the Committee reduced the original request by $6,800,000 and recommends $45,000,000 for these activities but with direction that NASA maintain the previously planned launch schedule for the first two Spacelab flights and continue effort in instrument development. This will ensure efficient and effective development and operations.

PLANETARY EXPLORATION PROGRAM

In January 1981, NASA requested $256,100,000 for planetary exploration programs in fiscal year 1982. The NASA fiscal year 1982 budget amendment proposed reductions of $40,800,000 as follows: $30,000,000 for the Venus Orbiting Imaging Radar associated with a two year delay in that mission; $5,100,000 for Mission Operations and Data Analysis; and $5,700,000 for Research and Analysis. The Committee disagrees in part and recommends a total authorization of $215,200,000. This is a reduction of only $100,000 from the revised request, but this represents the net of two changes one of which involved adding $5,000,000 to preserve the option of a Halley Intercept Mission.

Galileo.—The NASA fiscal year 1982 request for this mission to Jupiter was not revised by the budget amendment and remained at $108,000,000. The Committee reduced this by $5,100,000 to $102,900,000, a level of funding which should permit development of the mission at an appropriate pace. In addition, if the Administration decides not to do the Halley Mission, those funds would be available for Galileo.

Halley Intercept Mission.—NASA requested no funds for this mission. The Committee added $5,000,000 to the budget for a Halley Intercept Mission contingent upon a request for the funds from the Administrator. The Committee action preserves an option for the new

NASA Administrator to exercise but recognizes that additional funds will be required if a decision is made to pursue such a mission.

The Committee recognizes the scientific and international importance of a mission to Halley's Comet when it next approaches the Earth in 1986—indeed, we have received convincing testimony as to its importance—and optimistically anticipate that the Agency will also come to this recognition and thus request full development funding for fiscal year 1983 and subsequent years. The mission, launched in 1985, would intercept the trajectory of Halley's Comet to take high resolution pictures of its solid core (the nucleus) and to investigate by direct sampling the atmosphere of gasses and particles (the coma) surrounding the nucleus.

The scientific opportunity to observe Halley's Comet will not recur until 2061. Halley's Comet is the only bright, active comet displaying the full range of cometary phenomena and having a predictable trajectory which permits spacecraft exploration. The National Academy of Sciences Committee on Planetary and Lunar Exploration has concluded that "spacecraft studies of comets must be undertaken." The NASA Comet Science Working Group (CSWG), calling attention to the uniqueness of the Halley 1986 opportunity has concluded that "of various realizable proposals to study Halley in 1986, only the Halley Intercept Mission detailed in this report will adequately address those science objectives of the NASA comet program dealing with active comets. Therefore, the CSWG urges NASA to concentrate its efforts on implementing the Halley Intercept Mission."

If the United States does not undertake a Halley mission, we will be conspicuous by our absence. The European Space Agency, Japan, and the Soviet Union (with French and German partnership) all plan missions to investigate Halley's Comet. The United States, with its superior technological capability, has had no funded plan for such a mission. The Russian mission is expected to have imaging capability and would allow the Russians to claim, with some accuracy, a leadership role in the exploration of the solar system.

Research and Analysis.—Within the funds available, and after appropriate notifications, NASA is authorized to honor agreements related to the Infrared Telescope Mid-Level Facility which will support visiting scientists during utilization of the astronomical facilities in Mauna Kea.

LIFE SCIENCES

In January 1981, NASA requested $49,200,000 for the Life Sciences programs in fiscal year 1982. The NASA fiscal year 1982 budget amendment proposed reductions of $5,700,000 as follows: $2,500,000 for Life Sciences Flight Experiments and $3,200,000 for Research and Analysis. The Committee recommends the originally proposed funding level of $49,200,000.

The Committee feels that this important work should continue at a healthy level of support. For example, work in this area develops both technology to support man-in-space and understanding of the health effects of zero-gravity. Cutting these efforts would hamper and could preclude future manned programs just as we are putting man back in space aboard the Shuttle.

SPACE APPLICATIONS

NASA originally requested $472,9000,000 for Space Applications programs in fiscal year 1982. The budget amendment for fiscal year 1982 reduced the request to $372,900,000 with reductions as follows: $21,800,000 in resource observations; $59,299,000 in environmental observations; $200,000 in application systems; $9,000,000 in technology transfer; $4,400,000 in materials processing in space; and $5,300,000 in communications and information systems. The Committee disagrees in part with the reductions and recommends a total authorization of $410,900,000 for Space Applications programs for fiscal year 1982 which reflects a net reduction of $62,000,000 from the original request.

Resource Observations.—The original NASA request of $187,200,000 for fiscal year 1982 was reduced to $165,400,000 in the amended request. The entire funding of $10,000,000 for initiation of the Geological Applications Program (GAP) was eliminated. The Committee believes that the importance of applying NASA's unique expertise in cooperation with private enterprise and other federal agencies to improve the effectiveness of global assessment, exploration and development of strategic minerals and energy sources through the use of space techniques supports initiation of this activity in fiscal year 1982. The Committee recommends an authorization of $175,400,000 for Resource Observations including $10,000,000 for initiation of a Geological Applications Program.

Environmental Observations.—The original NASA request of $194,600,000 for fiscal year 1982 was reduced to $135,300,000 in the amended request. Within this budget item the original NASA request of $20,000,000 to initiate design and development of instruments for upper atmospheric research satellite (UARS) experiments was reduced to $5,000,000. This reduction does not recognize the need to implement a comprehensive program of upper atmospheric monitoring including effects on ozone concentrations and related phenomena. The Committee recommends development of upper atmospheric research satellite experiments but at a reduced level of $15,000,000. The total recommended authorization for environmental observation programs in fiscal year 1982 is $145,300,000.

Application Systems.—The original NASA request of $14,400,000 for fiscal year 1982 was reduced by $200,000. The Committee accepts this reduction and the recommended authorization for Applications systems in fiscal year 1982 is $14,200,000.

Technology Transfer.—The original NASA request of $9,000,000 for fiscal year 1982 was eliminated in the amended request. The importance of providing a mechanism for transferring remote sensing technology for operational use by public and private organizations requires the applications of NASA expertise and physical resources. In order to ensure that the capabilities of remote sensing obtained at great cost is made available for the economic and social benefit of the nation, the Committee believes it is necessary to continue these activities and recommends an authorization of $9,000,000 for technology transfer activities in fiscal year 1982.

NASA should make every effort to encourage the private sector to assume more responsibility for funding and facilitating transfer of

remote sensing technology. NASA should make a thorough review of areas applicable to transfer to the private sector, assess mechanisms for this transfer and report findings and progress made toward achieving these goals to the Committee by December 15, 1981.

Materials Processing in Space.—The original NASA request of $32,100,000 for fiscal year 1982 was reduced to $27,700,000 as a result of deleting $4,400,000 and terminating flight hardware for in space experimentation. In recognition of the potential benefits of materials processing in space and the low level of national effort in exploiting this technology the Committee recommends an authorization of $31,700,000 for this budget item including $4,000,000 for payload development.

Communication and Information Systems.—The original NASA request of $35,600,000 was reduced by $5,300,000 in the revised request. The budget amendment eliminates NASA funding for the proposed operational evaluation phase of the search and rescue project. The budget amendment would also reduce efforts to support the 1984–85 World Administrative Radio Conference, the 1983 Regional Administration Radio Conference, and studies for a United States/Canadian narrow band satellite system. The Committee recommends a total authorization of $35,300,000 including funds for an operational evaluation of the search and rescue project.

TECHNOLOGY UTILIZATION

The original NASA request of $14,600,000 for fiscal year 1982 was reduced to $4,600,000 in the amended request. The Technology Utilization program is recognized as a model federal program dedicated to the transfer of NASA technology and know-how for social and economic benefits. NASA has reported results of studies which indicate that demonstrated economic benefits are six times the cost of the Technology Utilization program. In addition, the National Aeronautics and Space Administration Act of 1958, as amended, declares that NASA shall assist in bioengineering research, development and demonstration programs. The Stevenson-Wydler Technology Innovation Act of 1980 in further recognition of the importance of programs exemplified by NASA Technology Utilization, mandated such activities be established across federal agencies. The Committee fully supports the NASA Technology Utilization program and recommends an authorization of $12,600,000 in fiscal year 1982.

NASA should conduct a thorough review of activities and institutional arrangements in the Technology Utilization program in order to determine which functions of the TU program can be provided by the private sector. NASA should report these findings and a complete assessment of potential impacts on the TU program to the Committee by December 15, 1981.

AERONAUTICAL RESEARCH AND TECHNOLOGY

NASA initially requested $323,600,000 for Aeronautical Research and Technology. A revised request for $264,800,000 was submitted subsequently. This amount represents a decrease of 4.2 percent in actual dollars from the 1981 appropriation, and follows another decrease of 10.4 percent from 1980 to 1981.

The 1982 savings were achieved largely at the expense of "new starts" and those programs that have a high degree of industry participation, the Systems Technology Programs. Conversely, the Research and Technology Base, which is conducted mostly in-house, remained essentially intact. In fact, it has actually grown considerably in recent years.

The Committee strongly supports the urgent need to slow the growth in Federal expenditures, and recognizes that NASA must do its part. Nevertheless the evidence is undeniable that today's Research and Technology expenditures are vital to the future economic success of American aeronautical products. As such they must be regarded as an investment and must be protected from excessive cuts. Some level of new work must be permitted to insure an uninterrupted flow of research results.

Furthermore, the Committee is concerned that NASA is withdrawing from its traditional participation with industry. Since a close relationship with industry has been the single, most important factor in the successful commercialization of NASA's research, it is essential that this relationship be maintained.

Therefore the Committee directs the following augmentations: High-Temperature Engine Core Technology ($4 million), Alternate Fuels and Materials ($3 million), High Speed Structures, Aerodynamics and Integration ($8 million), acceleration of the Advanced Turboprop Systems Program ($12 million), and Large Composite Primary Aircraft Structures ($4 million).

To partially offset these increases and to achieve a more balanced program the Committee further directs a general reduction of $19,800,000 to be applied to low priority Research and Technology Base activities; avionics, electronics, displays and aircraft operating procedures research; programs with near-term application; and Laminar Flow Control. The new total is $276,000,000.

SPACE RESEARCH AND TECHNOLOGY

NASA originally requested $141,000,000 for space research and technology activities in fiscal year 1982. The budget amendment for fiscal year 1982 reduced the request to $125,300,000 as follows: $9,500,000 in the research and technology base and $6,200,000 in systems technology programs. The Committee recommends a total authorization of $129,300,000 including $16,500,000 for advanced chemical propulsion research and technology activities and $6,900,000 for information systems technology activities.

TRACKING AND DATA ACQUISITION

NASA's original request included $435,200,000 for Tracking and Data Acquisition programs in fiscal year 1982. The revised request includes a reduction in the operations activities of $4,300,000 and a reduction in the Systems Implementation activities of $15,700,000 resulting in a net reduction of $20,000,000 for an amended fiscal year 1982 request of $415,200,000.

The Committee requests that the Office of Tracking and Data Acquisition review the planned operations activity based on new projected launch schedules and a thorough reassessment of the planned mission coverage for existing on-orbit spacecraft. The Committee believes that further reductions of $15,000,000 can be achieved in operations activities. Therefore, the Committee recommends a total authorization of $400,200,000 for tracking and data acquisition activities in fiscal year 1982.

CONSTRUCTION OF FACILITIES

The original budget request included $136,800,000 for construction of facilities activities. The revised request included $104,800,000 resulting in a net reduction of $32,000,000. The Committee adopted the reductions proposed in the budget amendment and recommended the deferral of three minor construction projects at the National Space Technology Laboratories. The Committee recommends a total authorization of $104,120,000 for construction of facilities activities in fiscal year 1982.

The three projects deferred by the Committee are:

(*a*) The Construction of an Addition to the Rehabilitation of Environmental Research Laboratory, Building 2423 for $190,000;

(*b*) The Construction of an Occupational Health Facility Addition to Building 1100 for $245,000; and

(*c*) Construction of an Engineering Services Building for $245,000.

The total amount deferred is $680,000.

RESEARCH AND PROGRAM MANAGEMENT

The NASA original budget request for fiscal year 1982 included $1,136,300,000 for research and program management. The revised budget proposed reductions of $22,000,000. The proposed reduction includes reductions in travel and a reduction of staffing levels. The Committee adopted the revised budget request.

LANGUAGE AMENDMENTS

The Committee made eight amendments to the general language of the bill, five of which were technical in nature to correct printing errors.

1. Section 7

Section 7 amends section 305 of the National Aeronautics and Space Act of 1958, as amended, which deals with patents. The purpose of the Committee amendment to section 7 is to clarify its provisions and conform them to existing law. The amendment does not alter the intent of the section.

2. Section 9

The Committee added a new section 9 to the bill (and renumbered following sections). This language would prohibit the use of funds for the sole source procurement of a new upper stage until NASA reassesses the requirements of other agencies; reassesses the viability of competitive procurement; and reports its findings to the authorizing committees of the House and Senate.

3. Section 10

The Committee added a new section 10 to the bill (and renumbered following sections). This language would provide that none of the $5,000,000 authorized for the Halley Intercept Mission in section 1 (a) (5) could be obligated until the funds are requested in a message to the Congress from the Administrator.

4. Technical Amendments

The following technical amendments were made to correct errors due to printing:

On page 5, line 10, immediately before the word "may" insert the following:

"which"

On page 5, line 14, change the word "purposes" to:

"purpose"

On page 6, line 10, change lower case "w" in the word "when to capital "W":

"When"

On page 8, line 17, change the word "expanded" to:

"expended"

On page 11, line 8, delete the comma immediately after the word "launched".

COMMITTEE VIEWS

U.S. CIVILIAN SPACE POLICY

Our country is facing fierce competition on all fronts including political, commercial, and military activities. We are immersed in world events and must exploit our strengths to advantage. Our Nation entered space through a race with the Soviet Union to place man on the moon. Europe, China, and Japan have joined the United States and the Soviet Union in developing the capability to launch satellites. Our leadership in remote sensing technology and space communication is being challenged and surpassed in some areas by the West Europeans and the Japanese. The records this country set for man in space have been surpassed by the Soviet Union.

However, the United States remains the unquestioned leader in exploration of our solar system demonstrated by landing of spacecraft on Mars and the remarkable photographs returned by the Voyager spacecraft from the planets Jupiter and Saturn. Most recently NASA completed a near perfect first flight of the Space Shuttle which started a new era in space and represents a giant step forward in opening the space frontier.

Failure to exploit the Apollo and Skylab experience through the establishment of permanent manned presence in space and the upcoming hiatus during which no imaging data will be returned from other planets via United States spacecraft reflect a national loss of vision, leadership and resolution.

The Administration should formulate an aggressive space policy statement and submit to the Congress a set of space goals which will communicate to the world that the United States is not only first in space but plans to meet the challenge of space through a continuing dominant presence.

SPACE SHUTTLE PROGRAM

The Space Shuttle government/industry team is to be congratulated for the successful near-perfect first flight. However, two issues loom on the horizon: the size of the orbiter fleet and evolvement of an economical operational system.

The Committee continues to believe that there will be a need for additional orbiters to accomplish critical civil and defense missions, to provide flexibility for exploitation of the orbiter capabilities, and to provide a backup for an unforeseen loss of an orbiter vehicle. The traffic model for the early years is filled; further, NASA has reduced the flight rate in the early years which will result in requirements for additional expendable launch vehicles. The Committee believes that significant economies could be achieved through a block buy of addi-

tional orbiters. That is, three orbiters could most likely be purchased for the same cost as two orbiters procurred one at a time. Therefore, the Committee requests that NASA and the Air Force review the requirements for additional orbiter vehicles and submit the results of this review to the Congress in December 1981. Any future budget requests for additional orbiters should include an arrangement whereby the Air Force shares the costs of procurement in proportion to the expected usage by each agency.

Ultimately, success of the Space Shuttle will depend on its economic viability. Appropriately, NASA management attention has been focused on the successful completion of the first flight. With the accomplishment of this milestone, NASA management must now focus on accomplishing the operational goals of the Space Shuttle both technically and organizationally. NASA should reassess the effectiveness of the organizational division at Headquarters between the Office of Space Transportation Systems and the Office of Space Transportation Operations. For example, lack of adequate resources in late fiscal year 1980 and early fiscal year 1981 has resulted in a reduction in the number of tanks that can be delivered thereby reducing the number of Shuttle flights in the early years of operation. From an organizational standpoint NASA has attempted to provide additional focus on the operational era at Headquarters; however, no parallel organizational focus exists at the field centers. Of particular importance is the establishment of an organizational focus for the operations era at Kennedy Space Center. From a technical viewpoint, increased emphasis is needed on produceability efforts to decrease the costs of the expendable external tanks as well as the refurbishment efforts.

PLANETARY EXPLORATION

The Committee reiterates its earlier view (contained in the reports accompanying the authorization bills for the two previous years) that NASA should pay particular attention to the planetary exploration program which is languishing. There will be a 50 month gap in planetary imaging data between the Voyager 2 encounter with Saturn in 1981 and its encounter with Uranus in 1986. Based on our best estimate of current schedules as reflected by the budget request, there will be another gap until Galileo reaches Jupiter. This situation could be mitigated by a Halley Intercept Mission. Planetary exploration is an area in which the U.S. has unquestionably led the world. Because of past accomplishments we are still leaders but other nations are gaining. The Committee will not preside silently over this abandonment of U.S. leadership in planetary exploration.

NASA must not only be aware of the need to nurture the planetary science community with new data but must act on this awareness. Where there is no new information to work with, a vital science becomes arid academic speculation.

The planetary science community is pleading for new missions to simply stay alive. NASA and the planetary science community are urged to consider creative new departures for planetary exploration—ways to get more data at less cost. This might be done by developing observatory-type facilities which can generate data for long periods.

SPACE SCIENCE

Space Science and Productivity.—Clearly, the Nation is in an economic doldrum, which could be mitigated by increasing our industrial productivity, yet some of our most productive programs—such as space science—are being cut. The right response to our economic situation is to produce more productive technologies. We should go forward with a vigorous program of planetary exploration, astronomy, solar-terrestrial physics, astrophysics, life sciences, and so forth which will stimulate and challenge the best minds of our Nation. We do not have to look back very far to see the benefits that have flowed from the innovations generated in a vigorous space program. Nor do we have to look forward very far to see the new benefits that will come but we do have to look beyond our immediate budget problems.

High Energy Astronomy.—The Committee is concerned about the deferral of the Gamma Ray Observatory project which represents another interruption of a carefully planned science program. The deferral of the Gamma Ray Observatory launch until 1988 will create yet another gap since the last high energy astronomy mission was launched in 1979. The Committee reluctantly approved this deferral but strongly encourages NASA to use the intervening time to assure that the project is well-defined and carefully planned so that development will proceed smoothly in the future.

Supporting Programs.—The Committee is concerned that the supporting areas of Mission Operations and Data Analysis and Research and Analysis have been reduced. These areas are important for maximizing the return of existing programs (i.e., satellites now generating data) and ensuring the flow of sound new ideas. In urging NASA to pay attention to the management of development projects the Committee does not wish to see existing or future programs slighted.

Explorers.—The Committee is gratified that the Explorer program funding was not reduced. This program has had fruitful scientific results as exemplified by the International Ultraviolet Explorer (IUE), which in its fourth year of operations is obtaining scientific results beyond its three-year mission objectives. Specifically, IUE has discovered a hot halo of rarified gas surrounding both of our two nearest neighboring galaxies, the Magellanic Clouds, and has discovered the nature of symbiotic stars—binary objects composed of a red giant and a white dwarf. The explorer SAS–1 found hundreds of X-ray sources in all-sky survey. This led to the development of the High Energy Astronomy Observatory satellites which then discovered pulsars and black holes.

NATIONAL OCEANIC SATELLITE SYSTEM

The Committee is concerned that benefits of remote sensing of the ocean from space have yet to be fully evaluated and recognized SEASAT has demonstrated that satellite provision of global ocean conditions on a timely basis will improve the efficiency of ship operation, transportation, off shore oil and gas exploration and drilling, commercial fishing, and ice monitoring. The Committee feels that there are other benefits yet to be explored. The capability of existing and planned meteorological satellites to measure ocean characteris-

tics is severely limited, and existing oceanographic techniques cannot provide the needed synoptic global information. The Committee requests that NASA reassess the implications and significance of the National Oceanic Satellite System concept. The Committee further requests that NASA investigate institutional arrangements for such a system which would replace the previous tri-agency arrangement. Finally, any ocean surveillance system developed by the Department of Defense should include a mechanism for providing data to the civilian community.

TECHNOLOGY UTILIZATION

The Committee is particularly concerned that NASA's ability to carry out its mandated responsibilities to provide the broadest practical dissemination and applications of aerospace technology will be severely curtailed if the reductions proposed in the Administrations revised fiscal year 1982 budget for the Technology Utilization program are carried out. Failure to follow through with this highly successful program would have unfortunate consequences on many activities having economic and social importance to the nation. Indeed, the Committee found last year that the Technology Utilization program should seek ways to further apply its efforts to address the needs of innovative small and minority firms located in rural, economically depressed areas. In response to this need expressed by the Committee, the agency organized a Rural Applications Team whose early efforts have indicated several problems indigenous to rural, economically depressed areas that could be addressed by application of NASA technology. This positive, initial effort, however, would be wiped out, along with virtually all of the agency's efforts to achieve the "broadest practical dissemination" of technology if the revised budget proposal were adopted. Consequently, the Committee has moved to restore budget authority in the Technology Utilization program to levels approximate with the fiscal year 1981 budget authority to ensure the continued infusion of high technology applications, to enhance national productivity, and to stimulate economic growth throughout the private sector.

OPERATIONAL LAND OBSERVING SYSTEMS

In November 1979, the previous Administration assigned the responsibility for managing the United States civil operational land remote sensing activities to the National Oceanic and Atmospheric Administration. NOAA was further directed to seek ways to further private sector opportunities in civil land remote sensing activities, through joint ventures with industry, a quasi-government corporation, leasing, etc., with the goal of eventual operation of these activities by the private sector.

Remote sensing data from Landsat 2 and 3 are currently utilized by state, local, federal and private users for agricultural, forestry, mineral, water and wildlife resource programs.

The Landsat D satellites which will carry an advanced sensor called the thermatic mapper are expected to provide finer geographical and spectral resolution. The first Landsat D satellite is scheduled for launch in the third quarter of 1982. However, launch of Landsat D-

prime has been delayed from one year later until three years later or when Landsat D fails. Therefore, operational demonstration of a two satellite land observation system will be delayed indefinitely. Funding for Landsat D-3 and D-4 has been eliminated which significantly threatens data continuity through the late 1980's.

Of further concern is the lack of support on the part of the new administration for remote sensing demonstration and technology transfer programs. The regional applications program, the user requirements program, and the applications system verification programs which were targeted for termination were restored by the Committee. Termination of these activities would have a pervasive impact on both state governments and nonprofit institutions. Termination of these activities would represent a breach of NASA's charter which requires the widest practical dissemination of research and development results. NASA must assure user benefits from the $1 billion investment in remote sensing technology.

NASA TRACKING AND DATA RELAY SATELLITE SYSTEM

The Tracking and Data Relay Satellite System is an integral link in the full utilization of the Space Transportation System. In order to improve the security of that link, NASA and the Department have agreed to incorporate the modifications in both the ground and flight hardware. The Committee believes that the cost of these security modifications, together with the additional operating costs should be reimbursed by the Department of Defense. The Committee requests that NASA report to the Committee the costs associated with the security modifications including the arrangements for DOD reimbursement. Future annual contingent liability reports to the Committee should include a specific notation on the amount associated with the security modifications as well as that share of the contingent liability to be funded by the Department of Defense.

NASA ADVISORY COMMITTEES

The Committee requests that NASA take steps (1) to make its advisory committees available to the Committee for consultation on matters raised by the Subcommittee; (2) to ensure that its advisory committees are able to raise issues on their own initiative, control their own agendas at least in part, and independent of NASA bring comments and recommendations to our attention; and (3) to have the NASA Advisory Council make an annual report to the Congress summarizing recommendations to the Administrator made by the various advisory committees. The Committee takes this position because it perceives a need for more independent information regarding NASA programs. For example, in presenting its annual budget each year the Agency is constrained to advance a single program as the only feasible one while simple common sense says that there are almost always alternatives. When the Committee tries to discover and discuss such alternatives with public witnesses typically they are hampered by a lack of budget information and often they lack broad and historical perspective on NASA programs. Our dilemma was particularly evident this year when NASA's carefully planned

budget underwent major revisions in a matter of weeks just before our authorization process had to begin. For example, there was no time for consultation with the space science community on the impacts of the budget revision. The guaranteed availability of a continuing advisory committee apparatus with cognizance of all NASA programs would provide the Congress with a very useful source of advice having a broad perspective and current information. To summarize, the Committee feels the Agency has not always been forthcoming with information and seeks this way of ensuring that at least another potential source is always available.

The Committee request is not intended to interfere with the organization of existing advisory committees. The request would impact their operations only in the following ways: (1) They would be able to set their own agendas and terms of discussion (at least in part) rather than having this done totally by NASA; (2) They would respond to questions and issues raised by this Committee; (3) They would make an annual report to the Congress.

The Administrator should continue to appoint as members of the advisory committees highly qualified individuals whose advice and counsel will be useful to him and to the Congress. Insofar as possible the Committees should be broadly representative of the space community and should be from diverse geographic areas.

The Committee recognizes the existence of other independent advisory groups such as the Space Science Board of the National Academy of Sciences. Clearly, this new request would in no way supplant them or reflect adversely on them. Such groups advise other government agencies as well as NASA, and are responsible to their parent organizations. Thus, they provide counsel from a different vantage point. Their advice has been useful to this Committee in the past and we look forward to their continued wise assistance.

INDEMNIFICATION OF CONTRACTORS BY NASA AGAINST THIRD PARTY LIABILITY

The Committee believes that NASA should provide third-party liability indemnifications to space systems contractors whenever feasible and in the best interest of the United States Government. The Committee recognizes NASA's close involvement in the total procurement process including NASA's spacecraft performance specifications, design, manufacture and reliability assessment. The Committee would envision that when it is in the best interest of the United States Government NASA would specify a required amount of contractor-obtained liability insurance coverage with additional indemnification to be provided by NASA. The Committee requests that NASA assign responsibilities to the General Counsel to coordinate an indemnification policy with the cognizant Executive Agencies and report its findings to the Committee no later than September 1, 1981. Section 308 of the National Aeronautics and Space Administration Act of 1958 as amended by Public Law 96-48 should be used as a guideline in developing Executive Order changes wherever practicable.

SUPERSONIC CRUISE RESEARCH

The Committee has long supported the concept of Federal support for research and technology development in areas with far-term applicability. The evidence is overwhelming that such research represents an investment that will pay off later, in millions of dollars in positive balance of trade and in thousands of jobs for Americans. One need only look to the skies to see the real-life application of past Government-sponsored aeronautics research.

One such far-term research category, that the Committee has consistently endorsed, is supersonic cruise research. Since 1971 when Congress cancelled the American SST prototype development, NASA has conducted a modest effort to solve the well-known problems with that aircraft.

Progress to date has been encouraging. Experts now believe that the technology has been identified which will permit industry to develop and produce an economically viable, environmentally acceptable advance supersonic transport. Before this can occur, the technology must be verified to the point where industry can quantify the technical risks and then make a business decision. Achieving this is the main thrust of NASA's program. And it is a proper and traditional role for NASA. Similar efforts in the past have led to a variety of successful applications, from general aviation to transport aircraft.

The Office of Technology Assessment in its assessment of advanced air transport technology, found that an acceptable AST could result in a $50 billion market, much of it foreign. For this and other reasons, OTA concluded: "It appears that it would be in our national interest to keep out options open in the supersonic field."

The Committee also notes the importance of leading-edge technology work by NASA to the military. All branches of the service rely on NASA to keep the technology shelves stocked, from which they design new aircraft.

A particular case in point is the Air Force plan to develop new fighter aircraft for the 1990's. Concepts currently under consideration include such NASA-derived technologies for sustained supersonic cruise as the variable cycle engine and the arrow wing.

Finally, the Committee recognizes that spin-offs from supersonic cruise research benefit other classes of civil aircraft. For example, work on high temperature engine components can be applied to subsonic engines, resulting in higher performance and greater fuel economy.

For all of these reasons, it would be a shortsighted mistake to withdraw from supersonic research. Therefore, the Committee urges NASA to continue within the funds appropriated, a program, involving industry participation, aimed at verification of supersonic cruise technology.

This endorsement of continued research in no way implies support for another Federally-sponsored prototype development. That is clearly a marketing decision that must be made by the private sector.

PROP-FAN TECHNOLOGY

The Committee is impressed with the fuel-saving potential of a new kind of aircraft propeller, known as the prop-fan. Early data indicate that a prop-fan equipped aircraft may be as much as 20 percent more fuel efficient than future turbo-fan aircraft, and will still permit cruise speeds of Mach 0.8.

In recognition of this potential, NASA undertook the Advanced Turboprop Systems Program in 1978. The objective is to demonstrate, in 1988, by means of a flight test program, the design and performance of the prop-fan.

The Committee is concerned that this leisurely time table will delay unnecessarily the commercialization of badly needed fuel-saving technology. Therefore, the Committee requests NASA to consider accelerating and enhancing the program. The Committee further requests the Administrator of NASA to prepare and submit, by July 30, 1981, a plan to achieve this. The plan should include milestones, costs and options for industry cost sharing.

EXPLANATION OF THE BILL

RESEARCH AND DEVELOPMENT

SUMMARY

	Authorization, fiscal year 1982	Page No.
1. Space Shuttle	$2,134,000,000	27
2. Space flight operations	903,900,000	39
3. Expendable launch vehicles	31,200,000	54
4. Physics and astronomy	350,400,000	57
5. Planetary exploration	215,200,000	71
6. Life sciences	49,200,000	80
7. Space applications	410,900,000	85
8. Technology utilization	12,600,000	129
9. Aeronautical research and technology	276,000,000	132
10. Space research and technology	129,300,000	158
11. Energy technology	2,000,000	173
12. Tracking and Data Acquisition	400,200,000	174
Total	4,914,900,000	

CONSTRUCTION OF FACILITIES

SUMMARY

Projects	Authorization FY 1982	No. Page
1. Modification of 12-ft pressure wind tunnel, Ames Research Center, Santa Clara County, Calif	$18,500,000	195
2. Modifications to space flight operations facility, Jet Propulsion Laboratory, Los Angeles County, Calif	9,300,000	195
3. Rehabilitation of utility control system, Lyndon B. Johnson Space Center, Harris County, Tex	680,000	195
4. Construction of waste material incinerator, John F. Kennedy Space Center, Brevard County, Fla	895,000	196
5. Repair of operations and checkout building roof, John F. Kennedy Space Center, Brevard County, Fla	825,000	196
6. Modifications for enhanced 20-inch supersonic wind tunnel, Langley Research Center, Hampton, Va	2,950,000	196
7. Modifications for high pressure turbine corrosion and thermal fatigue testing, Lewis Research Center, Cuyahoga County, Ohio	1,200,000	197
8. Modification and relocation of a 26-m antenna, Jet Propulsion Laboratories, Goldstone, Calif	4,700,000	197
9. Relocation of the DSS–44 antenna from Honeysuckle Creek, Australia, to Tidbinbilla, Australia	2,200,000	197

CONSTRUCTION OF FACILITIES—Continued

SUMMARY—Continued

Projects	Authorization FY 1982	No. Page
10. Space Shuttle facilities, at various locations, as follows:		
A. Construction of solid rocket booster processing and segment storage facilities, John F. Kennedy Space Center, Brevard County, Fla	12,400,000	198
B. Modifications to firing rooms, John F. Kenndy Space Center, Brevard County, Fla	3,100,000	198
C. Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, Orleans Parish, La	2,785,000	199
D. Modifications to building 30 for shuttle operations, Lyndon B. Johnson Space Center, Harris County, Tex	650,000	199
E. Minor shuttle unique projects, at several locations	1,115,000	199
11. Repair of facilities at various locations	12,800,000	199
12. Rehabilitation and modification of facilities at various locations	17,700,000	200
13. Minor construction of new facilities and additions to existing facilities at various locations	2,320,200	201
14. Facility planning and design	10,000,000	202
Total, construction of facilities	104,120,000	

RESEARCH AND PROGRAM MANAGEMENT, $1,114,300,000

The Research and Program Management appropriation funds the performance and management of research, technology and test activities at NASA installations, and the planning, management and support of contractor research and development tasks necessary to meet the Nation's objectives in aeronautical and space research. Objectives of the efforts funded by the Research and Program Management appropriation are to (1) 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) maintain facilities and laboratories in a state of operational capability and manage their use in support of research and development programs, and (3) provide effective and efficient technical and administrative support for the research and development programs. For FY 1982, an appropriation of $1,114,300,000 is requested.

More than 21,800 civil service personnel at ten installations and Headquarters are funded by the Research and Program Management appropriation. This civil service workforce is NASA's most important resource, the strength on which the future of space and aeronautics research activities depend. Seventy-two percent of the Research and Program Management appropriation is needed to provide for salaries and related costs of this civil service workforce. About two percent is for travel which is vital to manage successfully the Agency's in-house and contracted programs. The remaining amount of the Research and Program Management appropriation provides for the research, test and operational facility support, and for related goods and services necessary to operate successfully the NASA installations and to accomplish efficiently and effectively NASA's approved missions.

Each of the ten NASA installations are 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. They are summarized as follows:

Johnson Space Center.—Principal roles are management of the integrated Space Shuttle program and the Orbiter development project; astronaut and mission specialist selection and training; Space Shuttle mission planning, operation and control; and application of remote sensing to agricultural assessments and other Earth resources uses.

Kennedy Space Center.—Principal roles are the launch of Space Shuttle development and test flights; preparation for the operational phase of the Space Transportation System; and the launch of payloads on expendable launch vehicles.

Marshall Space Flight Center.—Principal roles are management of the Space Shuttle main engine, solid rocket booster and external tank projects; management of NASA's development activities on the Spacelab and Inertial Upper Stage projects; management of large automated spacecraft projects such as the Space Telescope; experiments in

materials processing in space; and solar heating and cooling technology development and verification for the Department of Energy.

National Space Technology Laboratories.—Principal roles are the support of Space Shuttle engine development and testing; regional Earth resources research and technology transfer; and support functions for other Government agencies located there.

Goddard Space Flight Center.—Principal roles are the development and operation of Earth orbital flight experiments and automated spacecraft to conduct scientific investigations and demonstrate practical applications; the management of the tracking and data acquisition activities for Earth orbital missions; and management of the Delta launch vehicle program.

Wallops Flight Center.—Principal roles are management and launch of sounding rockets and balloons; and operation of an instrumented flight range for aeronautical and space research.

Ames Research Center.—Principal roles are short haul aircraft and rotorcraft systems technology, computational fluid dynamics, planetary probes, and life sciences.

Dryden Flight Research Center.—Principal roles are aeronautical flight testing, research and operations, as well as providing the primary landing site for Space Shuttle orbital test flights and a contingency landing site for operational missions.

Langley Research Center.—Principal roles are long haul aircraft systems technology, emphasizing fuel conservation, safety and environmental effects; aerospace structures technology; environmental quality monitoring by remote sensing; and advanced space systems technology.

Lewis Research Center.—Principal roles are aeronautical and space propulsion technology; space communications research and technology; space and terrestrial energy systems research and technology; and management of the Centaur expendable launch vehicle program.

SUMMARY OF THE BUDGET PLAN BY FUNCTION

Personnel and related costs	$799,634,000
Travel	25,000,000
Facilities services	157,890,000
Technical services	51,611,000
Management and operations support	80,165,000
Total	1,114,300,000

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 $6,133,320,000, as follows: (a) for "Research and development," a total of 12 program line items aggregating the sum of $4,914,900,000; (b) for "Construction of facilities," a total of 14 line items aggregating the sum of $104,120,000; and (c) "Research and program management," $1,114,300,000. Subsection (c) would also authorize to be appropriated such additional or supplemental amounts as may be necesary for increases in salary, pay, retirement, or other employee benefits authorized by law.

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

In either case, no funds may be used for the construction of a facility in accordance with 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 repair, rehabilitation, or modification of facilities.

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 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 (13).

Section 3

Section 3 would provide 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 $10,000,000 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 amend Section 7 of title 18, United States Code, to extend the special maritime and territorial jurisdiction of the United States to include any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty) and the Convention on Registration of Objects Launched into Outer Space. Such jurisdiction would attach while the vehicle is in flight, which is defined to be from the moment when all external doors are closed on earth following embarkation until the moment when one such door is opened on earth for disembarkation, or in the case of a forced landing, until the competent authorities take over the responsibility for the vehicle and for the persons and property aboard. As used in this section, "vehicle" is intended to comprehend the meaning of "space vehicle" as defined, for example in subsections 103(2) and 308(f)(1) of the National Aeronautics and Space Act of 1958, as amended.

Under the Outer Space Treaty a signatory State retains jurisdiction and control over objects on its registry that are launched into outer space. Objects in outer space are therefore subject to the laws of the State of registry to the extent that such laws have extraterritorial effect in outer space. Under current United States law, there is no clear United States jurisdiction over criminal acts committed on a space vehicle, such as the Space Shuttle, while in flight. This amendment to title 18 would establish such jurisdiction over U.S. registered vehicles while in outer space as well as during the launch and reentry/landing phases. By defining "flight" to begin when the external doors of the vehicle are closed on the earth following embarkation and to end when one external door is opened on earth for disembarkation, a

clear interface is established between federal and state criminal jurisdiction. It should also be pointed out that under the Convention on Registration of Objects Launched into Outer Space, when there are two or more launching States in respect to any space object, the launching States may jointly determine which one of them shall register the object and may also conclude agreements regarding the jurisdiction and control over the space object and over any personnel thereof. This amendment to title 18 is not intended to prejudice any such agreements on jurisdiction entered into pursuant to the Convention.

Section 7

Section 7 would amend section 305 of the National Aeronautics and Space Act of 1958, as amended, to provide new subsections (k) and (l). Subsection (k) would provide that any object intended for launch, launched or assembled in outer space shall be considered a vehicle for the purpose of the "temporary presence" doctrine of section 272 of title 35 of the United States Code. This amendment would clarify that space vehicles are in the same category as vessels, aircraft or other vehicles of other countries insofar as application of the temporary presence doctrine in patent infringement matters is concerned.

Section 7 would also amend section 305 of the National Aeronautics and Space Act of 1958, as amended, to provide in a new subsection (l) thereof that the launch by the United States Government of a space vehicle (as defined, for example, in subsections 103(2) and 308(f)(1)) for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent to manufacture or use such space vehicle.

Under 28 U.S.C. 1498(a), any manufacture or use by or for the United States with its authorization or consent of a patented invention subjects the United States to liability. The launch capability of NASA is available to persons other than agencies of the United States on either a reimbursable or cooperative basis. Generally, a launch performed under a cooperative arrangement entails mutual benefits to the United States and the other person, such as the sharing of scientific data from the space vehicle. The courts have held that where a launch is part of such a cooperative arrangement that the use of any patented inventions incorporated in the space vehicle furnished by such other person is a use by or for the Government within the meaning of 28 U.S.C. 1498(a). On the other hand, there are many instances where NASA provides launch services to another person on a reimbursable basis without any tangible benefits flowing to the Government other than monetary reimbursement for such launch services. In such cases, the Government should not be held liable under 28 U.S.C. 1498(a) since any use of a patented invention contained in the space vehicle for which launch services are provided is generally for the sole benefit of the person procuring the launch services.

A determination of whether to grant express authorization and consent by the Administration pursuant to new subsection (l) would be based on a determination of whether any significant benefits inure to the United States from any particular launch for another person and therefore whether the U.S. should concomitantly assume any potential liability under 28 U.S.C. 1498(a). In the absence of an express grant of authorization or consent by the Administration in connection with a particular launch this subsection would remove any potential liability of the Government and permit the patent owner to pursue any remedy he may have for patent infringement in federal district court against any person other than the United States.

For the purposes of new subsection (l) the word "launch" is intended to cover all launch-related services provided by NASA, for example, prelaunch checkout of the space vehicle to be launched.

Section 8

Section 8 would formally repeal section 6 of the National Aeronautics and Space Administration Act, 1970, as amended (42 U.S.C. 2462), which requires that certain current and former employees of the National Aeronautics and Space Administration who previously worked or now work for an aerospace contractor which has contracts with the agency of more than $10,000,000 disclose certain facts about their employment in annual reports to the Administrator, which reports are then required to be made available for public inspection. The Congressional Reports Elimination Act of 1980, P.L. 96-470, repealed subsection 6(d) (42 U.S.C. 2462(d)), which had imposed the additional requirement that NASA send a report on such employment information to the Congress. The purpose of the remainder of section 6 that would be repealed is currently served by the Ethics in Government Act of 1978, P.L. 95-521, as amended. In any event, under section 207(c) of the Ethics in Government Act of 1978, as amended, the Title II reporting requirements therein supersede the Section 6 reporting requirements to be repealed hereby.

Section 9

Section 9 would prohibit the use of funds provided for in section 1(a)(2) for the sole-source procurement of a new upper stage until NASA in cooperation with other agencies has reviewed alternative systems, has assessed competitive procurement to satisfy national requirements, and has reported the findings to the authorizing committees of the House of Representatives and the Senate.

Section 10

Section 10 would restrict the use of funds authorized in section 1(a)(5) for the Halley Intercept Mission until a formal request for such funds is transmitted to Congress.

Section 11

Section 11 would provide that the Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1982."

COST AND BUDGET DATA

The bill will authorize appropriations for fiscal year 1982 in the amount of $6,133,320,000. 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 five years of the NASA budget request is as follows:

Fiscal year—	
1982	$6, 133, 320, 000
1983	6, 345, 200, 000
1984	5, 479, 100, 000
1985	4, 932, 500, 000
1986	4, 249, 300, 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(l)(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 U.S.—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 macroeconomic 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 U.S.

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 shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

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 (IX)–(X), UNITED STATES CIVILIAN SPACE POLICY, SERIAL C, APRIL 1981]

CONCLUSIONS AND RECOMMENDATIONS

1. Successive administrations have failed to establish long term goals for the civil space program.

2. This lack of goals has been responsible for an indifferent attitude on the part of the public. The circular argument has then been made that there is little public support for space goals.

Recommendation: NASA should propose to the Congress a set of long term goals which will reflect a balance between space science, applications, and space transportation activities. NASA should strengthen the agency-wide planning process.

3. Lessons learned from the Apollo and Space Shuttle programs that can be applied to future programs include:

A. Space programs benefit from vision, leadership and continuity of commitment.

B. Post-development "dividends" cannot be counted on as the source of funds for deferred new projects.

C. When funding profiles for large programs are manipulated for political reasons, the programs cannot be expected to operate at optimum efficiency.

4. Failure to exploit the Apollo and Skylab experiment through the establishment of a permanent presence in space and the upcoming hiatus during which no imaging data will be returned from other planets via United States spacecraft reflect a national loss of vision, leadership and resolution.

5. Commitment to a major, high-challenge space engineering initiative is both technically feasible and desirable.

Recommendation: The Administration should commit to a major, high-challenge space engineering initiative. One candidate initiative is a manned, multi-purpose, open-ended space operating base in low earth orbit.

NASA should reaffirm the Nation's commitment for continued exploration of our solar system through intensive investigation of other planets including a Mars sample return mission.

6. Solutions to many global concerns such as threats to the ozone layer, the carbon dioxide problem, and global air and water pollution, as well as global mineral and energy exploration would benefit from the existence of a Global Resource Information System. A system tying all the relevant data bases into an interactive network would likely be superior to a single organization responsible for acquiring and holding all the information.

Recommendation: NASA should submit to the Congress within 12 months a preliminary program plan for a Global Resource Information System utilizing an interactive network of relevant data bases including program scope, technology needs, and resource requirements.

7. The Administration needs to develop and follow a long-term investment philosophy for the space program which recognizes that program payoffs will include not only scientific knowledge but also improved economic capacity and jobs.

Recommendation: NASA should undertake studies to analyze the economic benefits of space through a better understanding of the linkage between NASA spending and economic returns including new products, increased productivity, and new jobs.

8. NASA's legislative charter has been selectively amended to include various expanded research roles and to support and contribute to other agency missions. As amended the National Aeronautics and Space Act of 1958 provides an adequate charter for civil space activities.

9. Continued vigilance is needed to assure that year-to-year budget pressures do not erode our national technological base and capabilities.

10. Reducing near term costs at the expense of total program cost increases is shortsighted. Further, terminating ongoing work damages the Nation's ability to conduct future high technology work by disrupting institutions and careers.

11. NASA has not proposed enough new programs to maintain a healthy institutional and industrial base.

12. Sharing of technology, data, and hardware between civilian and military programs can benefit both without compromising security.

13. National security related space programs have received substantial increases in their budgets due to the recognition that both national defense and strategic arms limitation agreements require extensive space-based surveillance and verification systems.

14. Growth in the military space program should not occur at the expense of NASA programs.

Recommendation: The civil and military space programs should be examined separately and their funding adjusted according to the requirements developed for each program.

15. Although numerous treaties have been signed which recognize the peaceful aspects of space, the potential for hostilities in space is increasing.

Recommendation: The Administration should reaffirm the need for separate civil and military space programs and exploit the space environment for peaceful uses.

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

APRIL 29, 1981.

1. Bill number: H.R. 1257.
2. Bill title: National Aeronautics and Space Administration Authorization Act, 1982.
3. Bill status: As ordered reported by the House Committee on Science and Technology, April 7, 1981.
4. Bill purpose: The bill authorizes the appropriation to the National Aeronautics and Space Administration (NASA) of $4,915 million for research and development, $1,114 million for research and program management, and $104 million for construction of facilities.

The authorization for research and development includes $2,134 million for Space Shuttle, $350 million for physics and astronomy, $215 million for planetary exploration and $411 million for space applications programs. The bill also authorizes $5 million for a Halley Intercept Mission contingent on a request from the Administration for the funds. Within the total amounts authorized the NASA administrator may vary the line item authorization level in using the funds upon notification of the Congress and without their objection. In addition, the bill authorizes additional amounts that may be necessary for increased salaries and benefits as authorized by law.

The total authorization level of $6,133 million excluding the pay supplemental exceeds the President's request by $11 million and is 12 percent above the level appropriated to date for fiscal year 1981. The bill provides less money for the space shuttle and funds space science, space applications, and aeronautics programs at levels higher than requested by the President.

5. Cost estimate:

[By fiscal years, in millions of dollars]

	1982	1983	1984	1985	1986
Estimated authorization level:					
NASA: Civilian space program (Function 250)	5,621				
NASA: Aeronautics (Function 400)	512				
Pay supplemental (Function 920)	76				
Total	6,209				
Estimated outlays:					
NASA: Civilian space program (Function 250)	4,030	1,360	225	10	2
NASA: Aeronautics (Function 400)	318	154	29	10	2
Pay supplemental (Function 920)	69				
Total	4,417	1,514	254	20	4

6. Basis of estimate: The estimate of outlays assumes appropriations equal to the authorized level and with the same distribution reflected in the bill. To the 1982 authorizations stated in the bill, $76 million was

added for increases in employee benefits as authorized by law. This increase (Function 920) was estimated at 10.4 percent of the total personnel compensation provided by the authorization. The estimated annual outlays are based on the historical spending patterns of the major NASA programs.

7. Estimate comparison: None.
8. Previous CBO estimate: None.

OVERSIGHT FINDINGS AND RECOMMENDATIONS, COMMITTEE ON GOVERNMENT OPERATIONS

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

COMMITTEE RECOMMENDATIONS

A quorum being present, the Committee approved the bill by roll call vote (23–17).

NASA RECOMMENDATIONS

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 letters:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
OFFICE OF THE ADMINISTRATOR,
Washington, D.C., January 28, 1981.

Hon. THOMAS P. O'NEILL,
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 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 1982. For that fiscal year, the bill would authorize appropriations totaling $6,725,700,000 to be made to the National Aeronautics and Space Administration as follows:

(1) for "Research and development" amounts totaling $5,452,600,000;

(2) for "Construction of facilities" amounts totaling $136,800,000; and

(3) for "Research and program management," $1,136,300,000.

In addition, the bill would authorize such sums as may be necessary for fiscal year 1983, i.e., to be available October 1, 1982.

The enclosed draft bill follows generally the format of the National Aeronautics and Space Administration Authorization Act, 1981 Public Law 96-316. 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, an amendment to section 7 of title 18, United States Code, has been included. This amendment would extend the special maritime and territorial jurisdiction of the United States to include any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Outer Space Treaty and the Convention on Registration of Objects Launched into Outer Space, while such vehicle is in flight. Under current United States law there is no clear U.S. jurisdiction over criminal acts committed on a space vehicle, such as the Space Shuttle, while in flight. This amendment to title 18 would establish such jurisdiction over U.S. registered vehicles while in outer space as well as during the launch and reentry/landing phases of flight.

Third, an amendment adding new subsections "(k)" and "(l)" to section 305 of the National Aeronautics and Space Act of 1958, as amended, is included. New subsection (k) would clarify that any object intended for launch, launched or assembled in outer space shall be considered a vehicle for purpose of the temporary presence doctrine in patent infringement matters. In essence this would put space vehicles in the same category as vessels, aircraft or other vehicles of other countries. Hence, a foreign user of the Space Shuttle may be able to take advantage of the temporary presence doctrine in avoiding liability for patent infringement. In furtherance of the National policy of encouraging widespread use of the Space Shuttle, NASA is now entering into launch services agreements with foreign governments, international organizations and consortia, and foreign corporations, as well as with domestic users of space. We believe that if a foreign user brings a spacecraft into the United States solely for the purpose of launching it into space, that user should be able to rely on the temporary presence doctrine if all other conditions are met, in the same manner that a vessel, for example, could rely on the doctrine. Moreover, if a user of the Space Shuttle manufactures something new in outer space, the doctrine should also be available when the item is returned from space and remains in this country before being returned to a foreign country.

New subsection (l) would provide that the launch by the United States Government of a space vehicle for a person other than the United States shall not be considered to be use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent to the manufacture or use of such space vehicle. This amendment would clarify the judicial remedy available to a patent owner whose patent may be infringed by a space vehicle launched by NASA for a person other than the United States. If an express authorization and consent is given to the person providing the space vehicle for launch, the patent owner's exclusive remedy would be in the United States Court of Claims; whereas if an express authorization and consent is not given to the person providing the space vehicle for launch, the patent owner would pursue any remedy he may have in federal district court. A determination of whether to grant express authorization and consent by the Administration pursuant to new subsection (l) would be based upon whether significant benefits inure to the United States from the launch for such other person and therefore whether the U.S. should concomitantly assume potential liability under 28 U.S.C. 1948(a).

Fourth, a provision formally repealing section 6 of the National Aeronautics and Space Administration Authorization Act, 1970, as amended (42 U.S.C. 2462), has been included. Section 6 requires that certain current and former employees of the National Aeronautics and Space Administration who previously worked or now work for an aerospace contractor which has contracts with the agency of more than $10,000,000 disclose certain facts about their employment in annual reports to the Administrator, which reports are then required to be made available for public inspection. The Congressional Reports Elimination Act of 1980, Public Law 96-470, repealed subsection 6(d) (42 U.S.C. 2462(d)), which had imposed the additional requirement that NASA send a report on such employment information to the Congress. The purpose of the remainder of section 6 that would be repealed is currently served by the Ethics in Government Act of 1978, Public Law 95-521, as amended. In any event, under section 207(c) of the Ethics in Government Act of 1978, as amended, the Title II reporting requirements therein supersede the section 6 reporting requirements to be repealed.

Fifth, in addition to providing authorization of appropriations in the amounts recommended by the President in his Budget for fiscal year 1982, the bill also would provide authorization for such sums as may be necessary for fiscal year 1983. 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 9.

Finally, the last section of the draft bill, section 10, has been changed to provide that the bill, upon enactment, may be cited as the "National Aeronautics and Space Administration Authorization Act, 1982," rather than "1981."

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 Qual-

ity, 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. On January 14, 1981, the Office of Management and Budget advised that there is no objection from the standpoint of the Administration's program to the presentation of this legislative proposal to the Congress and that its enactment would be in accord with the program of the President.

Very truly yours,

ROBERT A. FROSCH,
Administrator.

Enclosures.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
OFFICE OF THE ADMINISTRATOR,
Washington, D.C., March 18, 1981.

Hon. THOMAS P. O'NEILL,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: On January 16, 1981, the National Aeronautics and Space Administration submitted a draft 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." The bill was subsequently introduced in the House of Representatives as H.R. 1257 on January 23, 1981.

In accordance with amendments made by the President to the fiscal year 1982 Budget of the United States, NASA recommends that the following amendments be made to H.R. 1257:

Amend subsection 1(a) by changing, deleting and renumbering the designated paragraphs as follows:

(1) "Space Shuttle," strike "$2,230,000,000" and insert "$2,194,000,000";

(2) "Space flight operations," strike "$1,043,000,000" and insert "$910,900,000";

(4) "Physics and astronomy," strike "$451,400,000" and insert "$325,400,000";

(5) "Planetary exploration," strike "$256,100,000" and insert "$215,300,000";

(6) "Life sciences," strike "$49,200,000" and insert "$43,500,000";

(7) "Space applications," strike "$472,900,000" and insert "$372,900,000";

(8) "Technology utilization," strike "$14,600,000" and insert "$4,600,000";

(9) "Aeronautical research and technology," strike "$323,600,000" and insert "$264,800,000";

(10) "Space research and technology," strike "$141,000,000;" and insert "$125,300,000; and";

(11) "Energy technology", delete this paragraph in its entirety;

(12) "Tracking and data acquisition, renumber as paragraph (11) and strike "$435,200,000" and insert "$415,200,000".

Amend subsection 1(b) by changing, deleting and renumbering the designated paragraphs as follows:

Delete paragraph "(2)" in its entirety and renumber current paragraphs "(3)", "(4)", and "(5)" as "(2)", "(3)", and "(4)".

Delete paragraph "(6)" in its entirety and renumber current paragraphs "(7)" and "(8)" as "(5)" and "(6)".

Delete paragraphs "(9)", "(10)" and "(11)" in their entirety and renumber current paragraphs "(12)" as "(7)".

Delete paragraphs "(13)" and "(14)" in their entirety and renumber current paragraphs "(15)", "(16)", and "(17)" as "(8)", "(9)", and "(10)".

Renumber current paragraph "(18)" as "(11)", and strike "$15,000,000" and insert "$12,800,000".

Renumber current paragraph "(19)" as "(12)", and strike "$20,000,000" and insert "$17,700,000".

Renumber current paragraph "(20)" as "(13)", and strike "$4,000,000" and insert "$3,000,000".

Renumber current paragraph "(21)" as "(14)", and strike "$11,000,000" and insert "$10,000,000".

Amend subsection 1(c), "Research and program management", by striking out "$1,136,300,000" and inserting "$1,114,300,000".

Amend Section 2 to read "(1) through (13)", to reflect the change in paragraph numbers "(1) through (20)".

Amend Section 3 to read "(14)", to reflect the change in paragraph number "(21)".

The foregoing amendments would authorize appropriations in the amounts requested by the President in the amended Budget. The Office of Management and Budget has advised that such amendments would be in accord with the program of the President.

Sincerely,

A. M. LOVELACE,
Acting Administrator.

MINORITY VIEWS

The Minority was opposed to the action taken on the fiscal year 1982 budget. First, the Minority attempted to maintain the Reagan level for the total budget; however, the Majority budget resulted in a growth of $11 million. In addition to the Minority opposing the total budget level, we also opposed the way in which it was distributed amongst the various line items.

Specifically, the Minority was most concerned with the reduction of $60 million in the Space Shuttle line item and redistribution to other areas of the NASA budget. We share the Majority's concern for damaging valuable programs, but it is a matter of establishing priorities. The Administration, and in the past this Committee, have agreed that the Space Shuttle is the priority program. In fact, in the Committee oversight report entitled "Space Shuttle Program Cost, Performance and Schedule Review," the Subcommittee criticized previous Administrations with the following statement:

> When considering budget priorities, the Administration has not adequately recognized the urgent and critical national need of the Space Shuttle system for civil and military applications.

Further the same report points out that NASA has not adequately provided for program reserves and recommended:

> NASA should develop financial planning methods that will size program reserves to be consistent with the program risk.

The Reagan Administration, as this Committee recommended, has recognized the "urgent and critical national need" of the Space Shuttle as reflected in their budget. Therefore, it is not in the best interest of the space program of the nation to make such drastic cuts, especially in the area of "changes and upgrade" line item which was provided as a form of program reserves. The Minority proposed reducing this line item by $15 million as opposed to $60 million.

We also disagree with the Committee recommendation in the "Space Flight Operations" line item. We agree that the new Administration should thoroughly review the procurement decision for the shuttle upper stage and have the option available to either concur with the present decision or decide on another option. However, the Chairman's proposal, by substantially reducing this area, could preclude the option of proceeding as is currently planned. We propose a funding level equivalent to the Reagan budget plus $5 million.

A third area of disagreement is in the Halley Mission. We would like to see U.S. participation in the mission, but providing $5 million for a program requiring at least $30 million in fiscal year 1982 to accomplish the mission is of little value.

An additional area of concern is in the space applications area. Our colleagues have added $38 million above the Reagan budget. The additions are in meritorious areas; however, the Reagan Administration recognized this fact. As a consequence, none of the programs, except technology transfer, have been reduced to zero. We agree that the technology transfer area should be increased to the level suggested by our colleagues; however, a few millions dollars added to each of the other categories adds up to a substantial and unwarranted increase. It is possible to maintain the integrity of these programs without these additions. The times demand that we forego this type of addition to the budget and target the money into more fiscally-pressed programs.

The final area of concern is in the Aeronautical Research and Technology line item. The Majority voted to exceed the President's budget in this area by $11 million. The Minority sought to restore the President's budget figure by eliminating two programs relating to Advanced Supersonic Transport technology. These two programs had been added on during Subcommittee markup. The Minority feels that priority for doing research on supersonic transports is insufficient to justify such work during difficult economic times. We have also noted a declining interest on the part of industry for continuing this research. Supersonics is therefore an appropriate area to cut in order to regain the President's budget level.

LARRY WINN, Jr.
BARRY M. GOLDWATER, Jr.
HAMILTON FISH, Jr.
MANUEL LUJAN, Jr.
HAROLD C. HOLLENBECK.
ROBERT S. WALKER.
EDWIN B. FORSYTHE.
WILLIAM CARNEY.
MARGARET M. HECKLER.
F. JAMES SENSENBRENNER, Jr.
VIN WEBER.
JUDD GREGG.
RAYMOND J. MCGRATH.
JOE SKEEN.
CLAUDINE SCHNEIDER.
JIM DUNN.
BILL LOWERY.

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Calendar No. 124

97TH CONGRESS
1st Session

SENATE

REPORT
No. 97-100

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ACT, 1982

MAY 15, 1981.—Ordered to be printed

Filed under authority of the order of the Senate of MAY 13 (legislative day, APRIL 27), 1981

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

REPORT

[To accompany S. 1098]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1098) to authorize appropriations to the National Aeronautics and Space Administration for research and development, construction of facilities, and research and program management, and for other purposes, having considered the same, reports favorably thereon with amendments and recommends that the bill do pass.

COMMITTEE ADJUSTMENTS TO NASA REQUEST FOR FISCAL YEAR 1982—SUMMARY

Fiscal year 1982	Administration request	Committee authorization
Research and development:		
Space Shuttle	$2,194,000,000	$2,189,000,000
Space flight operations	910,900,000	914,900,000
Expendable launch vehicles	31,200,000	31,200,000
Physics and astronomy	325,400,000	333,400,000
Planetary exploration	215,300,000	215,300,000
Life sciences	43,500,000	43,500,000
Space applications	372,900,000	398,600,000
Technology utilization	4,600,000	12,600,000
Aeronautical research and technology	264,800,000	316,000,000
Space research and technology	125,300,000	130,300,000
Energy technology		
Tracking and data acquisition	415,200,000	415,200,000
Total	4,903,100,000	5,000,000,000

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COMMITTEE ADJUSTMENTS TO NASA REQUEST FOR FISCAL YEAR 1982—SUMMARY—Continued

Fiscal year 1982	Administration request	Committee authorization
Construction of facilities	$104,800,000	$104,800,000
Research and program management	1,114,300,000	1,118,100,000
Grant total	6,122,200,000	6,222,900,000

PURPOSE OF THE BILL

The purpose of this bill is to authorize appropriations to the National Aeronautics and Space Administration totaling $6,222,900,000 for fiscal year 1982 as follows:

Fiscal year 1981	Budget request	Committee authorization
Research and development	$4,903,100,000	$5,000,000,000
Construction of facilities	104,800,000	104,800,000
Research and program management	1,114,300,000	1,118,100,000

LEGISLATIVE HISTORY

The budget request for fiscal year 1982 for the National Aeronautics and Space Administration (NASA) was introduced in the Senate as S. 1098 on May 4, 1981.

On January 16, 1981 the budget request was submitted to the Congress. On March 18, 1981, the President submitted a revised request which included a reduction of $603,500,000 from the January request.

The Committee held hearings on March 10, 19, 25, 31 and April 7 and 27. Testimony was received from the Acting Administrator, various Associate Administrators of NASA, representatives from the Department of State, representatives from the Department of Defense and outside witnesses.

During its consideration of S. 1098, the Committee determined that amendments were required. The Committee, on May 6, 1981, marked up the bill and ordered S. 1098 reported with an amendment in the nature of a substitute.

SUMMARY

For fiscal 1982, NASA in January 1981, requested a budget totaling $6,725,700,000, of which $5,452,600,000 was for Research and Development, $136,800,000 for Construction of Facilities, and $1,136,300,000 for Research and Program Management. In March, however, the administration submitted a revised budget in an effort to reduce the overall Federal budget. The revised NASA fiscal year 1982 budget request is $6,122,200,000, of which $4,903,100,000 is for Research and Development, $104,800,000 for Construction of Facilities and $1,114,300,000 for Research and Program Management. The March budget revision resulted in a reduction of $603,500,000 from NASA's January request. To achieve this

reduction, $549,500,000 was cut from the January Research and Development request, $32 million was cut from the January Construction of Facilities request, and $22 million was cut from the original Research and Program Management request.

The revised budget:

Preserves the Space Shuttle research, development and production activities leading to the first successful flight in April 1981 and to an operational fleet to support civil and military needs;

Continues development of the Galileo mission to Jupiter scheduled for a 1985 launch using a Centaur Upper Stage in the Shuttle;

Deletes the United States spacecraft planned for the International Solar Polar Mission but provides a launch opportunity for the European spacecraft in 1986;

Continues other ongoing development projects such as Landsat-D, Space Telescope, and Earth Radiation Budget Experiment, but defers or cancels all fiscal year 1981 and 1982 new project initiatives in space science and applications; and

Makes an across-the-board reduction in aeronautics and space activities, including the elimination of all new initiatives, but continues support for research and technology base activities.

The fiscal year 1981 adjustments consist of reductions totaling $75 million in budget authority and $60 million in outlays, partially offset by an increase of $60 million in budget authority and $48 million in outlays to provide added schedule confidence in Space Shuttle development and test activities and production of orbiter vehicles. The reductions in other program areas in fiscal year 1981 are consistent with the actions reflected in the amended fiscal year 1982 budget request.

The revised budget request reduced funding for the Space Transportation System by $168 million. The results of the cuts are as follows:

Reduces amount provided for long lead procurement for Space Shuttle fifth orbiter, but retains option for fifth orbiter.

Cancels development of Solar Electric Propulsion System.

Delays readiness for Spacelab missions.

Reduces the rate of buildup of Shuttle flight missions during the early operational period.

Discontinues three-stage inertial upper stage development and replaces it with Centaur Upper Stage.

Defers the delivery of the Shuttle Orbital Maneuvering System Payload Bay Kit 1 year.

The revised budget request reduced funding for Space Science by $172.5 million. The results of the cuts are as follows:

Defers Venus Orbiting Imaging Radar mission by approximately 19 months.

Cancels the U.S. spacecraft for International Solar Polar Mission, but provides a 1986 launch opportunity for European Space Agency spacecraft.

Delays development of physics and astronomy and life sciences payloads for Spacelab missions.

Delays development of the Gamma Ray Observatory 2 years.

Reduces research and analysis activities.

Defers mission operations and data analysis activities.

The revised budget request reduces funding for Space and Terrestrial Applications by $110 million. The results of the cuts are as follows:

Cancels development of the interagency National Oceanic Satellite System and deletes related research.

Delays development of instruments for upper atmospheric research satellites.

Deletes planned geological applications program initiative.

Reduces effort on application of remote sensing to agricultural forecasting.

Phases out technology transfer and technology utilization programs.

The revised budget request reduced funding for Aeronautics and Space Technology by $78.9 million. The results of the cuts are as follows:

Eliminates proposed start of development of Numerical Aerodynamic Simulator.

Deletes initiatives in large composite structures and conservation of critical materials in aeronautics.

Phases out effort on variable cycle engine, supersonic cruise research, materials for advanced turbine engines, advanced low-emission combustion and Vertical/Short Takeoff and Landing technology.

Reduces other aeronautics technology efforts.

Reduces planned technology effort for future space capabilities.

Terminates NASA energy technology identification activities.

The revised budget request reduced funding for Tracking and Data Acquisition by $20 million. The cuts reduce support to flight projects and defers equipment improvements.

The revised budget request reduced funding for Construction of Facilities by $32 million. This deletes planned construction of Transonic Dynamics Tunnel, Small Engine Component Test Facility, Mach 19 Nitrogen Tunnel, and energy improvement projects.

Finally, the revised budget request reduces the funding for Research and Program Management by $22 million. This reduces permanent civil service staffing 840 below the previously planned level of 22,713 and reduces travel of civil service personnel.

The Committee recommends a total of $6,222,900,000 to be authorized to be appropriated to NASA for fiscal year 1982, an amount $100,700,000 above the revised administration request. Of that amount recommended by the Committee, $5 billion is for Research and Development, $104,800,000 for Construction of Facilities and $1,118,100,000 for Research and Program Management.

The revised NASA budget request for fiscal year 1982 has been carefully reviewed by the Committee. The Committee recognizes the need for budget reductions due to the current national economic situation and the desire to balance the budget. However, the Committee believes that investment in NASA programs will contribute greatly to our overall national economic recovery.

NASA programs are a major contributor to the health of the U.S. aerospace industry. The aerospace industry has been a significant positive contributor to our economy. In addition to employing

approximately one and a half million people, the aerospace industry has surpassed agriculture as the sector contributing most to net exports of the United States, with a trade surplus of over $13 billion.

In the areas of space transportation, space applications, space science, space technology and aeronautics, NASA programs are contributing to utilizing the space environment and contributing to the national science and technology base and in turn contributing to productivity and innovation. It is for these reasons that the Committee believes that NASA's research, development, and technological base must be maintained. The Committee found that some of the proposed reductions impaired NASA's science and technology base and thereby jeopardized the future needs of the Nation. Therefore, the Committee recommends additions directed to future national needs in space and aeronautics as follows:

$4 million to continue activities on the Solar Electric Propulsion System.

$8 million for space science to be applied to Shuttle/Spacelab Payload Development.

$10 million for the Upper Atmospheric Research Satellite Experiments.

$8 million to be applied to the technology transfer of space applications.

$7.7 million for continued development of materials processing Spacelab payload development and for communications and information systems.

$8 million to be applied to the technology utilization program.

$55 million for aeronautical research and technology, a program designed to assure the continued leadership and industrial success of the Nation in aeronautics.

$5 million to support the rebuilding of the space research and technology program necessary for our future space needs.

The Committee also found that the revised budget for fiscal year 1982 could be reduced by $5 million for procurement of long load items for the fifth Shuttle orbiter.

RESEARCH AND DEVELOPMENT—SUMMARY

Fiscal year 1981	Administration request	Committee authorization
Space Shuttle	$2,194,000,000	$2,189,000,000
Space flight operations	910,900,000	914,900,000
Expendable launch vehicles	31,200,000	31,200,000
Physics and astronomy	325,400,000	333,400,000
Planetary exploration	215,300,000	215,300,000
Life sciences	43,500,000	43,500,000
Space applications	372,900,000	398,600,000
Technology utilization	4,600,000	12,600,000
Aeronautical research and technology	264,800,000	316,000,000
Space research and technology	125,300,000	130,300,000
Energy technology		
Tracking and data acquisition	415,200,000	415,200,000
Total	4,903,100,000	5,000,000,000

SPACE SHUTTLE PROGRAM, $2,189,000,000

The Committee is extremely pleased with the successful first flight of the Space Shuttle and wishes to congratulate NASA and its contractors for the successful launch and landing of the Columbia.

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 into 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 DOD has scheduled its first space launch using the Space Shuttle for May 1982; the first operational flight for the Department is scheduled for July 1983; the Department's transition from expendable launch vehicles to the Space Shuttle will largely be completed in 1985; and, national security space missions will be nearly totally dependent on the Space Shuttle. The Air Force is the designated agency for the Department of Defense for all space transportation system matters.

In support of the Space Shuttle, the Air Force has undertaken the development of the inertial upper stage for the Space Shuttle, and the full scale construction of the Vandenburg Air Force Base Space Shuttle launch and landing facilities. Other efforts are under way 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 for fiscal year 1982

Design development, test and evaluation:	
Orbiter	$372,000,000
Main engine	127,000,000
External tank	25,000,000
Solid rocket booster	17,000,000
Launch and landing	199,000,000
Changes/system upgrading	300,000,000
Subtotal	1,040,000,000
Production:	
Orbiter	832,000,000
Main engine	105,000,000
Launch and landing	57,000,000
Spares and equipment	155,000,000
Subtotal	1,149,000,000
Total	2,189,000,000

Milestone schedule

First orbital test flight, April 12, 1981.
Orbital test flights 2, 3 and 4, 1981 and 2nd Quarter 1982.
Initial operational capability, 3rd Quarter 1982.
Delivery of 2nd Orbiter (099), June 1982.
Delivery of 3rd Orbiter (103), September 1983.
Delivery of 4th Orbiter (104), December 1984.

Design, Development, Test, and Evaluation (D.D.T. & E.).—The total Space Shuttle estimate for fiscal year 1981 has increased by $70 million, which is to be reprogrammed from Space Flight Operations (STS Operations). These funds can be made available because of reductions in requirements resulting from the delay in the first operational flight. In addition, funding estimates within the Space Shuttle program have been adjusted consistent with increased development (DDT&E) requirements. The DDT&E requirements have increased substantially primarily due to technical problems encountered in development, certification and launch preparation activities and the resultant delay of STS-1 and extension of the orbital flight test (OFT) program. As a result, it has been necessary to allocate the funding budgeted under changes in the DDT&E effort. In addition, $55 million of funds budgeted under changes and system upgrading to meet added requirements and changes in the DTT&E effort. In addition, $55 million of funds budgeted for production are reallocated to meet the DDT&E requirements. These funds are available as a result of rephasing of production activities. Detailed explanations are contained in the applicable sections that follow. Major activities planned for fiscal year 1982 are:

Complete orbital flight test missions.

Continue main propulsion testing to demonstrate 109 percent of rated power performance.

Complete the second set of flight main engines.

Complete delivery of the fourth solid rocket booster flight set hardware for the OFT program.

Complete delivery of the external tanks for the OFT program.

Analyze OFT flight data for application to operational flights.

Continue follow-on orbiter fabrication and assemble leading to a national fleet of operational orbiters.

Reconfigure Columbia for the first operational flight.

Complete first qualification firing of the performance improved solid rocket booster.

Complete refurbishment of the STS-1 solid rocket boosters.

The Space Shuttle orbiter is a reusable vehicle, approximately the size of a DC-9 jet transport, which will serve as the orbiting spacecraft to deploy and retrieve payloads in low Earth orbit and provide living quarters for personnel in orbit. The orbiter reenters the atmosphere and lands as an unpowered aircraft, returning crew and payloads. The physical dimensions of the payload may be as large as 4.6 meters (15 feet) in diameter and 18.3 meters (60 feet) in length. The Orbiter Columbia (OV 102) was assembled in Palmdale, Calif., and delivered to the orbiter processing facility (OPF) at the Kennedy Space Center (KSC) in March 1979. Planned thermal protection system (TPS) installations, OPF testing, and hardware modifications were completed and the orbiter was rolled out of the OPF to the vehicle assembly building (VAB) on November 24, 1980. The orbiter was mated with the external tank (ET) and the solid rocket boosters (SRB's); and following integrated testing with these elements, the stacked vehicle was moved to the launch pad on December 29, 1980, for final launch preparations. Hardware certification was completed. Avionics verification testing was completed.

Substantial effort during the past year has been devoted to the thermal protection system. In addition to completing the tile installations on Orbiter 102, detailed analysis of the tile installations were conducted to determine structural margins, and each tile was proof tested to 1.25 times the expected flight loads. Concurrently, the TPS certification test program has continued to demonstrate mission life capability under conditions simulating acoustic, structural and thermal loads. Testing to assess damage effects and failure modes were conducted, as well as off-limit testing to determine actual thermal margins. Special tests were initiated to confirm design changes, and several tests were added to investigate further areas of concern, such as aerodynamic shock during the transonic phase of the ascent trajectory. All TPS certification testing for STS-1 were completed in early 1981.

Additional testing and verification of software were completed. The first manned orbital flight of STS-1 occurred on April 12, 1981.

Three high pressure liquid hydrogen/oxygen engines, each with a 2,100,000 newtons (470,000 pounds) thrust—in vacuum—are used to power the Space Shuttle. These engines represent a major advancement in propulsion technology. While these engines have incurred substantial problems during testing, significant progress has been made during the past year on the main engine development, test and evaluation. The main engine has accumulated over 100,000 seconds of operation, compared to a program target of 80,000 seconds established several years ago. The final three engine main propulsion test firing was successfully completed on January 17, 1981. The operation and performance of the Shuttle's main engines during all phases (start, preparation, ignition, thrust build-up, throttling, mainstage, shutdown, and propellant dump) of the STS-

1, ascent were excellent. A thorough inspection of the engine hardware will be preformed at Kennedy Space Center.

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

During the first flight the external tank performed in a completely normal manner. The tank separated from the orbiter on schedule and impacted the Indian Ocean very close to the predicted location.

Two resuable soild rocket boosters (SRB) attached to the external tank, burn in parallel with the main engines to provide the necessary thrust for the Space Shuttle from liftoff to booster staging. Each SRB weighs approximately 583,600 kilograms (1.2 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 45 kilometers (150,000 feet) the SRB's separate from the external tank, descend by parachute, and land in the ocean about 260 kilometers (140 miles) from the launch site. They are recovered by ship and returned to the launch site for refurbishment and reuse.

The solid rocket boosters performed as predicted during ascent and separation from the external tank during STS-1. The recovery system operated as programed. All parachutes deployed as planned, however, damage to the aft skirts was somewhat more than anticipated. Each booster lost one of the main parachutes after impact due to loss of flotation devices. The reasons for the damage are being evaluated in detail.

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 landing, testing, and servicing systems and ground support equipment.

All major launch support systems, such as the Launch Processing System, performed as designed and supported the countdown and launch satisfactorily. Launch pad damage from the STS-1 launch was minimal. Damage was less than occurred on any Apollo launches, and considerably less than the damage that occurred on the corresponding first Apollo launch. Preparations are now underway for the second Space Shuttle test flight, currently planned for early this fall.

The fiscal year 1982 request for Shuttle, Design, Development, Test and Evaluation is $740 million. In addition, $300 million has been requested for changes/system upgrading. The Space Shuttle program management and cost reviews conducted in 1979 emphasize the need for adequate allowances for changes and system modification needed to meet performance goals, particularly as related to reliability, safety, and reducing operating costs. Areas in which changes in upgrading are likely to be required have been identified. As these changes in upgrading requirements are approved,

they will impact the funding for either DDT&E or production. Accordingly, the need for funds for changing and upgrading are consistent with the program reviews and constitute a vital part of the fiscal year 1982 program request.

Production.—The purpose of the Space Shuttle production program is to build a national fleet of vehicles currently approved as four orbiters plus the maintenance of an option for a fifth orbiter. Three orbiters are currently being procured in the production phase. Challenger, Orbiter 099, used in the DDT&E as the structural test article, is being modified to an operational vehicle and is scheduled for delivery in June 1982. Discovery, Orbiter 103 and Atlantis, Orbiter 104 are being manufactured as new vehicles with delivery dates of September 1983 and December 1984, respectively. The Columbia, Orbiter 102, will also be modified to an operational configuration after completion of the orbital flight test program.

The administration's fiscal year 1982 budget request includes funding for production activities to provide a four-orbiter fleet on a schedule compatible with civil and military needs, but reduces the planned long lead procurement for the fifth orbiter to $5 million, and defers the Orbital Maneuvering System (OMS) Payload Bay Kit until 1984. This reflects a 1-year slip in the delivery of the OMS Payload Bay Kit.

Committee comment

The Space Shuttle remains the key to a viable space transportation system that would enable the United States to maintain its leadership in space technology and the utilization of the space environment to meet national needs. The Committee has consistently supported the need for a Shuttle fleet consisting of at least five orbiters. Testimony presented on space activities for this year has not altered that view. In fact, considering the successful first launch of the Space Shuttle, this view has become even stronger. While Shuttle development delays necessitate continued use of expendable launch vehicle to meet launch requests, payload demands for these vehicles support the predictions for growth in space traffic. Further, the Department of Defense is actively planning for intensive Shuttle utilization with the development of its sortie support system in addition to its base payload projections.

The Committee adopts the budget recommendation for Shuttle DDT&E and accepted the reduction of $36 million for Shuttle production. Additionally, the Committee further reduced the production budget by $5 million. This action reduces the funding for the fifth orbiter.

The reduction of funds for the fifth orbiter should not be construed as lack of support by the Committee for the need for at least five orbiters. However, there is increasing concern about the rising costs for orbiter production as well as increasing demands for Shuttle use.

Therefore, the Committee requests that NASA, together with the Department of Defense, look at ways to reduce orbiter production costs while still meeting projected national needs. This report should focus on the currently projected requirements, realistic growth profile, the possibility of a multiple buy of orbiters and the savings that would result from this type of procurement and possi-

ble funding options. The report should be submitted to the Congress by September 1, 1981.

Space Flight Operations Program, $914,900,000

The space flight operations program provides for space transportation system activities other than the Space Shuttle design, 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	$151,200,000
Development, test and mission support	184,000,000
Advanced programs	8,800,000
Spacelab	110,700,000
Space Transportation system operation	464,200,000
Total	914,900,000

Space transportation systems operations 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 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.

The STS upper stages currently under development consist of the Inertial Upper Stage (IUS) and the Spinning Solid Upper State (SSUS). They are expendable, propulsive upper stages required to provide the capability to deploy Shuttle-launched payloads to high energy orbits not attainable by the Shuttle alone. The IUS, being developed under a Department of Defense contract, is a multistage, solid propellant expendable vehicle to become operational on the Titan in 1981 and on the STS in late 1982. Because of recent problems, including revised contractor cost estimates, plans for this upper stage are currently under review.

NASA reviews in late 1980 of the progress of the NASA—unique three-stage version of the Air Force-developed Inertial Upper Stage (IUS) led to the conclusion that there was a very low probability that this upper stage could meet NASA requirements. Lack of confidence in performance estimates, and a significant new cost overrun announced by the IUS development contractor led NASA to delay the planned launch of Galileo to 1985 and to intensify its study of alternatives to the three-stage IUS.

The agency has concluded that a Centaur upper stage should be modified for integration in the Shuttle to serve as the Nation's planetary mission upper stage, and to be available for other high energy missions in the late 1980's.

The present estimate is that $38,300,000 will be required in fiscal year 1981, and $75 million will be required in fiscal year 1982 for upper stage effort under space transportation systems operations capability development to implement the proposed plan. This funding would be required to continue the necessary NASA effort related to use of the two-stage IUS for Shuttle launches, to terminate activities on the three-stage IUS, and to undertake design and development effort for use of the Centaur upper state in the Shuttle.

The Solar Electric Propulsion System (SEPS) is an upper stage to be used to augment the capabilities of the space transportation system (STS). The SEPS converts solar energy into ion propulsion for a major advance in space propulsion. SEPS is required for a range of advanced planetary and Earth orbit missions. Planetary missions will benefit from SEPS capabilities in terms of improvements in flight trajectories, long duration maneuvering capabilities for rendezvous with planets and other bodies of the solar system, and from a widening of launch windows which currently limit the conduct of planetary missions. The SEPS will also provide a major increase in capabilities for transportation to a geosynchronous orbit. The administration's request eliminates funding for SEPS.

Development, test and mission support provides the common engineering, scientific and technical support required for the space transportation systems' research and development activities at the Johnson Space Center, the Kennedy Space Center, the Marshall Space Flight Center, and the National Space Technology Laboratories.

Advanced programs provide technical as well as programmatic data for the definition and evaluation of potential new initiatives so that they can be considered for future development. These activities are conducted to develop new capabilities, to obtain significant performance improvements, and reduce future program risks and development cost through the effective use of new technology.

Spacelab is a major element of the space transportation system. The program is being carried out jointly by the European Space Agency (ESA) and NASA. ESA has undertaken the development of Spacelab and has agreed to supply the first Spacelab to the United States without cost. NASA's support of ESA's Spacelab development effort includes development of support equipment not provided by ESA, the procurement of a second Spacelab, and system activation activities to assure Spacelab compatibility with the orbiter and an operational capability.

The fiscal year 1982 budget request continues the development of the crew transfer tunnel and the Spacelab simulator; fabrication of the Spacelab verification flight instrumentation equipment; manufacture of ground support equipment; and integration of the flight hardware for the first Spacelab missions. The revised budget request reflects a stretch-out in the procurement of the second set of flight elements being procured from the European Space Agency as well as a delay in the initial set of spare hardware needed to support early Spacelab flights. The immediate result of the revised budget request is a delay in the launch of the Spacelab 1 by 3 months, from June 1983 to September 1983, and a delay in the launch of Spacelab 2 by 1 year, from October 1983 to October 1984.

Space transportation system operations provide the services and operational activities that integrate the Space Shuttle, the Spacelab and the upper stages into a versatile and economic system; accomplish mission planning; provide the operational recurring hardware and consumables, and support all launch, flight, recovery, crew and related activities.

The administration's revised budget request provides for external tanks, solid rocket boosters and other efforts needed for early Shuttle operational missions beginning in late 1982. The proposed redution in Shuttle operations will reduce the flight mission plan. Shuttle operations and payload support operations requirements have been rephased to be consistent with the reduction. The reductions in the budget request for upper stage operations result from termination of procurement to support the Centaur upper stage consistent with a revised schedule.

Committee Comment

The administration request for Space Flight Operations is $910,900,000. The Committee approved a funding level of $914,900,000. The difference represents the Committee's inclusion of $4 million to continue solar electric propulsion advanced technical development and design activities.

The request also includes development funds for a sole-source procurement of a modified Centaur stage for planetary mission requirements. Although the Committee recognizes the urgency of a decision to proceed with development of an upper stage to meet the NASA's planetary program schedule, there is concern about how NASA is proceeding. The Committee feels strongly that an upper stage vehicle should be able to meet the near and midterm needs of space science, space applications and national security. In particular there is concern that NASA may be proceeding to build a vehicle designed for one mission. Consequently, the Committee requests that NASA and the Department of Defense (USAF) conduct a joint study to reexamine all the options for the development of an upper stage before NASA enters into any contractual agreements that will commit to production. The joint study should consider the technical merits of each option, the adaptability of each option to both NASA and DOD requirements, the advantages and disadvantages of the various procurement processes and alternative funding arrangements. A report should be submitted by the new NASA Administrator and Secretary of the Air Force to the authorizing committees of Congress. The report shall include a complete statement of action proposed to be taken and the fact and circumstances relied upon in support of such action. No contractual agreements to commit to production should be entered into unless a period of 30 days has passed after receipt by the authorizing committees of Congress of the report.

NASA should also pursue contractual arrangements that minimize Federal Government exposure to unforeseen cost growth and consider possible alternatives such as fixed price contracts, cost overrun share ratio and incentive fee contracts. Finally, it is hoped that NASA would proceed as expeditiously as possible because of the impact extended delays might have on their existing programs.

The fiscal year 1982 request for Spacelab causes a delay in the launch of Spacelabs 1 and 2. To assist in reducing the overall Federal budget the Committee accepts the administration recommendation for Spacelab. However, the Committee does believe that the continual delays of Spacelab are more serious than may be apparent to the administration. The Committee would like NASA to pay particular attention to the impacts of such delays and encourages NASA to work toward the earliest launch dates practicable for

Spacelab, including reviewing the possibility of reprogramming funds for this activity.

The fiscal year 1982 budget request reflects a reduction of $2 million in advanced programs. Specific tasks impacted are the orbital transfer vehicle, advanced upper stage effort, and advanced systems relating to operations in geostationary orbit which would be deferred to future years. The principal effort supporting potential future initiatives would be reduced, thus providing support to only one of two of the highest priority candidates, and deferring other potential new initiative study and advanced development to future years.

This request reflects a significant decrease from $13 million in fiscal year 1980. The Committee again views with concern NASA's lack of emphasis on this activity which is vital to long-range planning for future space opportunities. Although the Committee approves the budget request, it is hoped that in the future more appropriate funding levels would be requested for these essential activities.

Physics and Astronomy Program, $333,400,000

Summary of resources requirements

Space telescope (ST) development	$119,500,000
International Solar Polar Mission (ISPM) development	5,000,000
Gamma Ray Observatory (GRO) development	8,000,000
Shuttle/Spacelab payload development and mission management	43,000,000
Explorer development	36,600,000
Mission operations and data analysis (MO&DA)	47,000,000
Research and analysis (R&A)	38,800,000
Suborbital program	35,500,000
Total	333,400,000

Launch schedule

Project and mission:	*Year*
International solar polar mission: ISPM	1985
Space telescope: ST	1985
Gamma ray observatory: GRO	1988
Space Shuttle orbital flight test payloads: OSS-1	1981
Spacelab:	
Spacelab-1	1983
Spacelab-2	1984
Explorers:	
Dynamics explorer	1981
San Marco-D/low orbit	1982
San Marco-D/multistationary	1983
Solar mesosphere explorer	1981
Infrared astronomical satellite	1982

Active magnetospheric particle tracer explorer	1984
Cosmic ray isotope experiment	(1)
Cosmic background explorer	1986
Extreme untraviolet explorer	1985

Suborbital programs:
- Sounding rockets—About 60 launches per year.
- Balloon flights—About 20 launches per year.
- Airborne—About 80 flights per year with C-141 airborne observatory.

[1] Launch date has not been rescheduled.

Note.—Shuttle/Spacelab payloads in support of space science objectives will build to a flight rate of approximately 2.5 equivalent Spacelab missions per year by 1985.

Committee comment

The NASA revised fiscal year 1982 request for ISPM was $5 million, reflecting a decrease of $53 million from the original request and a decision to terminate the development of the U.S. spacecraft for the mission. ISPM was planned to consist of two spacecraft with the second spacecraft being provided by the European Space Agency.

Testimony before the Committee supported the Committee's concern that NASA's decision to cancel the U.S. spacecraft mission was made without consultation with the Department of State and the European Space Agency, which is comprised of 11 European countries. This short-term budgetary action would have consequences not only on our ultimate understanding of how the Sun affects weather and communications here on Earth but also on our relations with the Europeans with whom we have been cooperating. The proposal to reduce the fiscal year 1982 request to $5 million would leave funds only for development of U.S. instruments scheduled to fly on the spacecraft which the Europeans are building. In other words, the proposed reduction would cancel the U.S. spacecraft and eliminate the flight opportunity for the four European instruments planned for the U.S. spacecraft (out of a total of nine) while presuming that our instruments would fly on the European spacecraft as planned.

The Committee rejects the unilateral decision to cancel the U.S. spacecraft mission and supports a two spacecraft mission. Consequently, the Committee requests that NASA fully examine the options for a two-spacecraft mission in light of recent events and new information and prepare a report to be submitted to the Congress as soon as practicable which would include a discussion of all the options for a two-spacecraft mission, total funding requirements as well as annual funding requirements for each option, the advantages and disadvantages of each option including the technical, scientific and cost aspects, and plans on how to proceed with each option. Although the Committee has not included any additional funding for fiscal year 1982, the Committee recognizes there will be increased funding requirements in future years, due to this action.

During the last budget cycle the Shuttle/Spacelab payload development program was reduced by $43 million, due to fiscal restraints, resulting in the curtailment of future missions. There is considerable concern that the continuing reductions in this program are severely impacting the use of Spacelab for physics and astronomy. The fiscal year 1982 effort on physics and astronomy instrument development program has been effectively eliminated.

Consequently, the Committee restored $8 million which will provide a minimal increase for payload development. The Committee is also concerned about the termination of the chemical release module facility. The scientific community appears to show considerable interest in this program and its value to space plasma physics. The Committee requests NASA to reexamine its decision to terminate this program as well as alternative funding arrangements, including the possibility of participation by other Federal agencies.

Planetary Exploration, $215,300,000

Summary of Resources Requirements

Galileo Development	$108,000,000
Venus Orbiting Imaging Radar	10,000,000
Mission operations and data analysis	45,800,000
Research and analysis	51,500,000
Total	215,300,000

Launch schedule

Project and mission:	*Year*
Galileo: Galileo orbitor and probe	1985
Voir: Venus radar imaging	1988

Committee comment

The Committee concurs in the administration's request for the planetary exploration program. The planetary exploration program, for the past 5 or 6 years, has had some spectacular accomplishments, particularly with respect to Saturn, Jupiter, Venus and Mars. The Committee recognizes that there will be a 50-month gap in planetary imaging data between the Voyager 2 encounter with Saturn in 1981 and its encounter with Uranus in 1986. There will be additional gaps surrounding the Galileo mission. The Committee does wish to express its strong support for a world leadership position in planetary exploration and is quite aware and concerned about the aggressive policies of other nations in planetary exploration. The absence of U.S. representation will be particularly conspicuous when Halley's Comet reaches it closest approach to the Sun in 1986. The Soviets (with the French), the Japanese, and the Europeans all have missions to investigate the comet. Halley's is the only bright active comet displaying the full range of cometary phenomenon and enters our solar system every 76 years.

In light of this, the Committee requests that the administration reexamine its decision to forego a Halley's Intercept Mission.

Life Sciences Program, $43,500,000

Summary of Resources Requirements

Life sciences flight experiments	$14,000,000
Research and analysis	29,500,000
Total	43,500,000

Committee comment

The Committee believes that the life sciences program is of extreme importance. The activities in this area contribute to the development of both technology to support man-in-space and an understanding of the health effects of zero-gravity. The successful first flight of the Space Shuttle and optimism for the future manned programs make the life sciences program an essential element and it is hoped that it will be recognized as such. However, due to the current economic situation the Committee approved the administration request.

Space Applications, $398,600,000

Summary of Resources Requirements

Resource observations	$165,400,000
Environmental observations	145,300,000
Applications systems	14,200,000
Technology transfer	8,000,000
Materials processing in space	31,700,000
Space communications	34,000,000
Total	398,600,000

Committee comment

The Committee disagrees with portions of the administration's revised budget request for fiscal year 1982 for space applications.

Resource observations.—The Committee approved the request of resource observations. However, the committee does want to emphasize the importance of these programs to near-term utilization of space technology and feels strongly that the technology capability must be maintained in order to advance quickly to the development of an operational space based land remote sensing system in the private section as soon as possible.

Environmental observations.—The original January 1982 request of $194,600,000 was reduced to $135,300,000 in the revised budget request. Within this budget item the original NASA request of $20 million to initiate design and development of instruments for upper atmospheric research satellite (UARS) experiments was reduced to $5 million. This reduction does not recognize the need to implement a comprehensive program of upper atmospheric monitoring including effects on ozone concentrations and related phenomena. The Committee recommends development of upper atmospheric research satellite experiments, but at a reduced level of $15 million.

The total recommendation for environment observations is $145,300,000.

Technology transfer.—The original NASA request of $9 million for fiscal year 1982 was eliminated in the revised budget request. The importance of providing a mechanism for transferring remote sensing technology for operational use by public and private organizations requires the applications of NASA expertise and physical resources.

The development of an operational remote sensing system within the private sector is a very real option that needs to be undertaken. However, due to the nature of the technology many of the potential users are not aware of the applications of remote sensing to such areas as land use planning, natural resource assessment, agricultural assessment, to name a few.

Additionally, in order to ensure that the capabilities of remote sensing obtained at great cost is made available for the economic and social benefit of the Nation, the Committee believes it is necessary to continue these activities and recommends an authorization of $8 million for technology transfer activities in fiscal year 1982.

NASA should make every effort to encourage the private sector to assume more responsibility for funding and facilitating transfer of remote sensing technology.

Materials processing in space.—The original NASA request of $32,100,000 for fiscal year 1982 was reduced to $27,700,000 as a result of deleting $4,400,000 and terminating flight hardware for in space experimentation. In recognition of the potential benefits of materials processing in space and the low level of national effort in exploiting this technology the Committee recommends an authorization of $31,700,000 for this budget item including $4 million for payload development.

Communication and information systems.—The original NASA request of $35,600,000 was reduced by $5,300,000 in the revised request. The budget amendment eliminates NASA funding for the proposed operational evaluation phase of the search and rescue project. The budget amendment would also reduce efforts to support the 1984-85 World Administrative Radio Conference, the 1983 Regional Administration Radio Conference, and studies for a United States/Canadian narrow band satellite system. The Committee included funding for an operational evaluation of the search and rescue mission. Deletion of funds this year leaves a 4- to 5-year data grap between completion of the experimental phase and the earliest possible availability of an operational system.

Technology Utilization, $12,600,000

Committee comment

The original NASA request of $14,600,000 for fiscal year 1982 was reduced to $4,600,000 in the amended request. The technology utilization program is recognized as a model Federal program dedicated to the transfer of NASA technology and know-how for social and economic benefits. NASA has reported results of studies which indicate that demonstrated economic benefits are six times the cost of the technology utilization program. In addition, the National Aeronautics and Space Administration Act of 1958, as amended, declares that NASA shall assist in bioengineering research, development and demonstration programs. The Stevenson-Wydler Technology Innovation Act of 1980 in further recognition of the importance of programs exemplified by NASA technology utilization, mandated such activities be established across Federal agencies. The Committee fully supports the NASA technology utilization program and recommends an authorization of $12,600,000 in fiscal year 1982.

NASA should conduct a thorough review of activities and institutional arrangements in the technology utilization program in order to determine which functions of the TU program can be provided by the private sector. NASA should report these findings and a complete assessment of potential impacts on the TU program to the Committee by December 15, 1981.

Aeronautical Research and Technology Program, $316,000,000

Summary of Resource Requirements

Research and technology base	$157,800,000
Systems technology programs	158,200,000
Total	316,000,000

Committee comment

The Committee is of the view that the Nation's economic recovery program will be best served by moderating the planned fiscal year 1982 budget reductions in those highly selective areas where administration goals would actually suffer from undue reduction levels. The economic vitality of the aviation industry stands out clearly as a case in point. Its ability to continue its leading contributions, as summarized earlier, to the Nation's economic recovery must be strengthened, not weakened.

Accordingly, the Committee has restored $55 million of the $82.3 million reduction originally contained in S. 1098 for the NASA fiscal year 1982 budget for aeronautics, including Research and Development, Construction of Facilities, and Research and Program Management.

It is the intent of the Committee that $51.2 million of these added funds be applied by NASA for enhancement of selected activities previously summarized in the discussion of the systems technology programs.

In particular the following technology programs should be enhanced or accelerated to permit the aviation industry to retain technological leadership in both near and long-term activities which are under most intense competitive pressure from foreign industry consortia.

Advanced turboprop (or prop-fan); Advanced aircraft composites; High Speed Aircraft Technology (aerodynamics, materials and propulsion); Commuter Aircraft Technology; Critical Aircraft Resources; Active Controls Technology; and Laminar Flow Control Technology.

The Committee is convinced that program enhancement largely through research and development contracts with industry must be balanced by increased internal research and program management resources. Toward that end $3.8 million have been added for applications to that account. Another concern of the Committee underlies this increase. A steady erosion has been noted by industry and NASA executive personnel in the level of advanced scientific and engineering personnel in the NASA aeronautics research centers. The creative expertise which such individuals have made available for the guidance of research in the centers and the entire aviation research community has been declining through retirement and attrition. The agency must move to offset this trend, in part by offering additional and more challenging technical career opportunities within its centers. This will provide the base from which future leaders in aeronautics technology may emerge.

Space Research and Technology Program, $130,300,000

Summary of Resources Requirements

Research and technology base	$120,300,000
Systems technology programs	7,000,000
Standards and practices	3,000,000
Total	110,200,000

Committee comment

The Committee believes that strong support of these activities is vital to maintaining future U.S. leadership in space. It is imperative that the Nation begin rebuilding this important element of the NASA program emphasizing the longer range aspects of space technology.

The Committee, therefore, approved a restoration of $5 million to the research and technology base of which an additional $200,000 is provided to the space power and electric propulsion part of the program for the laser propulsion activities currently underway. Emphasis should also be given to advanced chemical propulsion research and technology activities.

Energy Technology Program, $0

Committee comment

The Committee is concerned about the decision to phase out the energy technology program and hopes that a thorough review will be made by NASA of the contributions of its energy program to helping solve our Nation's energy problems. The Committee feels the larger issue is whether or not NASA should be involved in conducting energy research. The Committee intends to look intc this issue in more detail.

Tracking and Data Acquisition Progam, $415,200,000

Committee comment

The Committee approved the request for Tracking and Data Acquisition as requested. The Committee is concerned about some of the findings of the Inspector's General report on TDRSS and has asked NASA for its response to it.

CONSTRUCTION OF FACILITIES—SUMMARY

1. Modification of 12-foot pressure wind tunnel, Ames Research Center	$18,500,000
2. Modifications to space flight operations facility, Jet Propulsion Laboratory	9,300,000
3. Rehabilitation of utility control system, various buildings, Lyndon B. Johnson Space Center	680,000
4. Construction of waste material incinerator, John F. Kennedy Space Center	895,000
5. Repair of operations and checkout building roof, John F. Kennedy Space Center	825,000
6. Modifications for enhanced 20-inch supersonic wind tunnel, Langley research Center	2,950,000
7. Modification for high pressure turbine corrosion and thermal fatigue testing, Lewis Research Center	1,200,000
8. Modification and relocation of 26-meter antenna, STDN, Goldstone, California	4,700,000
9. Relocation of DSS-44 antenna to Tidbinbilla, Australia	2,200,000
10. Space Shuttle facilities at various locations as follows:	
A. Construction of solid rocket booster processing and segment storage facilities, John F. Kennedy Space Center	12,400,000
B. Modifications to firing rooms, John F. Kennedy Space Center	3,100,000
C. Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility	2,785,000
D. Modifications to Building 30 for Shuttle operations, Lyndon B. Johnson Space Center	650,000
E. Minor Shuttle-unique projects, various locations	1,115,000
11. Repair of facilities at various locations, not in excess of $500,000 per project	12,800,000
12. Rehabilitation and modification of facilities at various locations, not in excess of $500,000 per project	17,700,000
13. Minor construction of new facilities and additions to existing facilities at various locations, not in excess of $250,000 per project	3,000,000
14. Facility planning and design not otherwise provided for	10,000,000
Total	104,800,000

The construction of facilities (CoF) budget provides for contractual services for repair, rehabilitation and modification of existing facilities; the construction of new facilities; the acquisition of related facility equipment; the design of facilities projects and advance planning related to future facilities needs.

The annual budget for 1982 will provide for: the continuation of prior years' endeavors in meeting the facilities requirements for the Space Shuttle; modification of aeronautical research and development facilities; repair, rehabilitation, and modification of other facilities to maintain, upgrade and improve the usefulness of the NASA physical plant; minor construction of new facilities; and facility planning and design activities.

The projects and amounts in the amended budget estimate reflect Space Shuttle requirements that are time sensitive to meet specific milestones. Other program requirements for 1982 include the modification of the 12-Foot Pressure Wind tunnel at the Ames Research Center, modifications to the Space Flight Operations Facility at the Jet Propulsion Laboratory, modification of the 20-Inch Supersonic Wind Tunnel at the Langley Research Center, and modification and relocation of the 26-meter antenna at Goldstone, California.

The revised budget request for the fiscal year 1982 program continues to meet the objectives of preserving and enhancing the capabilities and usefulness of existing facilities and ensuring safe economical and efficient use of the NASA physical plant. This revised budget request continues the necessary rehabilitation and modification program as in prior years and continues a repair program, but of a lower level than in the current year. The purpose of the repair program is to restore facilities to a condition substantially equivalent to their originally designed capability. The minor construction program continues to provide a means to accomplish smaller facility projects which accommodate changes in technical and institutional requirements. This program also includes projects which continue NASA efforts to reduce the consumption of energy.

Funds requested in the revised budget request for facility planning and design provide the same level of funding as in the current year to cover advance planning and design requirements for potential future projects, master planning, facilities studies, engineering reports and studies and the preparation of facility project design drawings and bid specifications.

The revised budget request for fiscal year 1982 reduces the request pending by $32,000,000 to $104,800,000; $10,200,000 below the fiscal year 1981 appropriation level. Outlays are estimated to be $153,000,000 in fiscal year 1982, a decrease of $2,900,000 below the estimate for fiscal year 1981.

Committee comment

The Committee is recommending approval of the NASA budget request of $104,800,000, unchanged from the revised request for the construction of facilities program for fiscal year 1982.

Research and program management—Summary

Fiscal year 1982	*Revised budget request*
Personnel and related costs	$799,634,000
Travel	25,000,000
Facilities services	157,890,000
Technical services	51,611,000
Management and operations support	80,165,000
Total	1,114,300,000

The research and program management appropriation includes funding for research in Government laboratories, management of programs, and other activities of NASA. 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.

The revised budget request for the research and program management appropriation funds will provide for the continued, but reduced, performance and management of research, technology and test activities at NASA installations, and the planning, management and support of contractor research and development tasks necessary to meet the Nation's objectives in aeronautical and space research. Approximately 22,000 civil service personnel at ten installations and Headquarters are funded by this appropriation.

The research and program management appropriation reductions of $10 million in fiscal year 1981 and $22,000,000 in fiscal year 1982 relate primarily to reductions in planned staffing. The revised budget request reflects employment levels of 21,873 at the end of fiscal year 1981 and fiscal year 1982, a reduction of 840 below the previously planned 22,713. The distribution of this reduction by program area and center has not been determined in the brief time

available. It is evident that a portion of the reduction will be applied to energy technology efforts performed on a reimbursable basis for the Department of Energy. It will also be necessary to reduce the amount of travel, shorten the duration of trips and rephase the agency hiring plan.

Committee comment

The Committee's actions in the research and development part of the budget have impacted the research and program management budget. The result of this amounts to an increase of $3.8 million above the administration's request. The Committee approved $1,118,100,000 for research and program management.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate.

The NASA request for new budget authority for fiscal year 1982 was $6,122,200,000. This bill, as recommended by the Committee authorizes appropriations to NASA in the amount of $6,222,900,000 for the fiscal year. This amount is $100.7 million over the budget request.

The estimates for the next 5 years of NASA budget authority are as follows:

[In millions of dollars]

Fiscal year	NASA estimate	Committee estimate
1982	6,122.2	6,223
1983	6,492	6,753
1984	5,859	6,409
1985	5,579	5,981
1986	5,364	5,862

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 including the procurement of a fifth Space Shuttle orbiter. Further, these estimates do not provide for administrative adjustments that may be required, such as Federal employee pay increases required by law. 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 following cost estimate for the legislation was received from the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, D.C., May 11, 1981.

Hon. BOB PACKWOOD,
Chairman, Committee on Commerce, Science and Transportation, U.S. Senate, Dirksen Senate Office Building, 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 the National Aeronautics and Space Administration Authorization Act, 1982.

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 11, 1981

1. Bill number: Not yet assigned.

2. Bill title: National Aeronautics and Space Administration Authorization Act, 1982.

3. Bill status: As ordered reported by the Senate Committee on Commerce, Science, and Transportation on May 6, 1981.

4. Bill purpose: The bill authorizes the appropriation to the National Aeronautics and Space Administration (NASA) of $6,223 million for fiscal year 1982: $5,000 million for research and development, $105 million for construction of facilities, and $1,118 million for research and program management. In addition, the bill authorizes additional amounts that may be necessary for increased salaries and benefits as authorized by law.

The authorization for research and development includes $2,189 million for the space shuttle, $333 million for physics and astronomy, $399 million for space applications, and $316 million for aeronautical research. Within the total amounts authorized, the NASA administrator may vary from the amounts specified for particular projects in the bill upon notification of Congress and without its objection.

The total authorization level of $6,223 million, excluding the pay supplemental, exceeds the President's request of $6,122 million by $101 million. The bill funds space applications and aeronautical research programs at levels higher than requested by the President. The authorization level is $742 million above fiscal year 1981 appropriations to date for NASA.

5. Cost estimate:

[By fiscal years, in millions of dollars]

	1982	1983	1984	1985	1986
Estimated authorization level					
NASA—Civilian space program (Function 250)	5,667				
NASA—Aeronautics (Function 400)	556				
Pay supplemental (Function 920)	35				
Total	6,258				
Estimated outlays					
NASA—Civilian space program (Function 250)	4,072	1,362	223	10	2
NASA—Aeronautics (Function 400)	339	174	32	10	2
Pay supplemental (Function 920)	32				
Total	4,443	1,536	255	20	4

6. Basis of estimate: The estimate assumes appropriations equal to the authorized level and with the same distribution reflected in the bill. To the 1982 authorization stated in the bill, $76 million was added for increases in employee benefits as authorized by law. This increase (function 920) was estimated at 4.8 percent of the personnel compensation provided by the authorization. Estimated annual outlays are based on historical spending patterns of the major NASA programs.

7. Estimate comparison: None.

8. Previous CBO estimate: On April 29, 1981, CBO provided a cost estimate to the House Committee on Science and Technology for H.R. 1257, as ordered reported on April 7, 1981. CBO estimated that H.R. 1257 authorized $6,209 million. For that estimate, the increase in employee benefits was estimated at 10.4 percent of personnel compensation, resulting in a projected pay supplemental of $76 million. Excluding the pay supplemental, H.R. 1257 would authorize $90 million less than this bill.

9. Estimate prepared by: Jeffrey W. Nitta.

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 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 11(b), rule XXVI of the Standing Rules of the Senate.

SECTION-BY-SECTION ANALYSIS

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 $6,222,900,000 as follows: (a) for "Research and development," a total of 11 program line items aggregating the sum of $5 billion; (b) for "Construction of facilities," a total of 14 line items aggregating the sum of $104,800,000; and (c) for "Research and program management," $1,118,100,000. 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 (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 (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 12 months beginning at any time during the fiscal year.

Subsection (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 (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 repair, rehabilitation, or modification of facilities.

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 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 section 1(b), paragraphs (1) through (20).

Section 3

Section 3 would provide 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," 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 sections 1(a) and 1(c); and,

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

unless (A) a period of 30 days has passed after the receipt by the Speaker of the House, the President 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 amend section 7 of title 18, United States Code, to extend the special maritime and territorial jurisdiction of the United States to include any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty) and the Convention on Registration of Objects Launched into Outer Space. Such jurisdiction would attach while the vehicle is in flight, which is defined to be from the moment when all external doors are closed on Earth following embarkation until the moment when one such door is opened on Earth for disembarkation, or in the case of a forced landing, until the competent authorities take over the responsibility for the vehicle and for the persons and property aboard. As used in this section, "vehicle" is intended to comprehend the meaning of "space vehicle" as defined, for example, in sections 103(2) and 308(f)(1) of the National Aeronautics and Space Act of 1958, as amended.

Under the Outer Space Treaty a signatory state retains jurisdiction and control over objects on its registry that are launched into outer space. Objects in outer space are therefore subject to the laws of the state of registry to the extent that such laws have extraterritorial effect in outer space. Under current U.S. law, there is no clear U.S. jurisidiction over criminal acts committed on a space vehicle, such as the Space Shuttle, while in flight. This amendment to title 18 would establish such jurisidiction over U.S. registered vehicles while in outer space as well as during the launch and reentry/landing phases. By defining "flight" to begin when the external doors of the vehicle are closed on the Earth following embarkation and to end when one external door is opened on Earth for disembarkation, a clerar interface is established between Federal and State criminal jurisdiction. It should also be pointed out that under the Convention on Registration of Objects Launched into Outer Space, when there are two or more launching states in respect to any space object, the launching states may jointly determine which one of them shall register the object and may also conclude agreements regarding the jurisidiction and control over the space object and over any personnel thereof. This amendment to title 18 is not intended to prejudice any such agreements on jurisdiction entered into pursuant to the Convention.

Section 7

Section 7 would amend section 305 of the National Aeronautics and Space Act of 1958, as amended, to provide new subsections (k) and (l). Subsection (k) would provide that any object intended for launch, launched or assembled in outer space shall be considered a vehicle for the purpose of the "temporary presence" doctrine of section 272 of title 35 of the United States Code. This amendment would clarify that space vehicles are in the same category as vessels, aircraft or other vehicles of other countries insofar as application of the temporary presence doctrine in patent infringement matters is concerned.

Section 7 would also amend section 305 of the National Aeronautics and Space Act of 1958, as amended, to provide in a new subsection (l) thereof that the launch by the U.S. Government of a space vehicle (as defined, for example, in subsections 103(2) and 308(f)(1)) for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent to manufacture or use such space vehicle.

Under 28 U.S.C. 1498(a), any manufacture or use by or for the United States with its authorization or consent of a patented invention subjects the United States to liability. The launch capability of NASA is available to persons other than agencies of the United States on either a reimbursable or cooperative basis. Generally, a launch performed under a cooperative arrangement entails mutual benefits to the United States and the other person, such as the sharing of scientific data from the space vehicle. The courts have

held that where a launch is part of such a cooperative arrangement that the use of any patented inventions incorporated in the space vehicle furnished by such other person is a use by or for the Government within the meaning of 28 U.S.C. 1498(a). On the other hand, there are many instances where NASA provides launch services to another person on a reimbursable basis without any tangible benefits flowing to the Government other than monetary reimbursement for such launch services. In such cases, the Government should not be held liable under 28 U.S.C. 1498(a) since any use of a patented invention contained in the space vehicle for which launch services are provided is generally for the sole benefit of the person procuring the launch services.

A determination of whether to grant express authorization and consent by the Administration pursuant to new subsection (l) would be based on a determination of whether any significant benefits inure to the United States from any particular launch for another person and therefore whether the United States should concomitantly assume any potential liability uinder 28 U.S.C. 1498(a). In the absence of an express grant of authorization or consent by the Administration in connection with a particular launch this subsection would remove any potental liability of the Government and permit the patent owner to pursue any remedy he may have for patent infringement in Federal district court against any person other than the United States.

For the purposes of new subsection (l) the word "launch" is intended to cover all launch-related services provided by NASA, for example, prelaunch checkout of the space vehicle to be launched.

Section 8

Section 8 would formally repeal section 6 of the National Aeronautics and Space Administration Authorization Act, 1970, as amended (42 U.S.C. 2462), which requires that certain current and former employees of the National Aeronautics and Space Administration who previously worked or now work for an aerospace contractor which has contracts with the agency of more than $10 million disclose certain facts about their employment in annual reports to the Administrator, which reports are then required to be made available for public inspection. The Congressional Reports Elimination Act of 1980, Public Law 96-470, repealed subsection 6(d) (42 U.S.C. 2462(d)), which had imposed the additional requirement that NASA send a report on such employment information to the Congress. The purpose of the remainder of section 6 that would be repealed is currently served by the Ethics in Government Act of 1978, Public Law 95-521, as amended. In any event, under section 207(c) of the Ethics in Government Act of 1978, as amended, the title II reporting requirements therein supersede the section 6 reporting requirements to be repealed hereby.

Section 9

Section 9 would provide that the act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1982."

ROLLCALL VOTES IN COMMITTEE

In accordance with paragraph 7(c) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following record votes during its consideration of S. 1098.

Senator Cannon offered an amendment to restore $55 million of the $82.3 million reduced in the administration's bill for aeronautical research and technology. Senator Cannon asked for a rollcall vote to indicate to the administration the strong feeling of the Committee in support of his amendment.

On the following rollcall vote of 13 yeas to 3 nays the Cannon amendment was adopted:

YEAS (13)	NAYS (3)
Goldwater	Packwood
Schmitt	Pressler
Kassebaum [1]	Gorton
Stevens [1]	
Kasten	
Cannon	
Long [1]	
Hollings	
Inouye [1]	
Ford	
Riegle	
Exon [1]	
Heflin [1]	

[1] By proxy.

Without objection, the Committee ordered favorably reported S. 1098 authorizing $6,222,900,000 for fiscal year 1982 for the National Aeronautics and Space Administration with amendments.

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, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

SECTION 7 OF TITLE 18, UNITED STATES CODE

Sec. 7. Special maritime and territorial jurisdiction of the United States defined.

The term "special maritime and territorial jurisdiction of the United States', as used in this title, includes:

(1)-(5) • • •

(6) Any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies and the Convention on Registration of Objects Launched into Outer Space, while that vehicle is in flight, which is from the moment when all external doors are

closed on Earth following embarkation until the moment when one such door is opened on Earth for disembarkation or in the case of a forced landing, until the competent authorities take over the reponsibility for the vehicle and for persons and property aboard.

SECTION 305 OF THE NATIONAL AERONAUTICS AND SPACE ACT OF 1958

SEC. 305. a-j * * *

(k) Any object intended for lunch, launched, or assembled in outer space shall be considered a vehicle for the purpose of section 272 of title 35, United States Code.

(l) The launch by the United States Government of a space vehicle for a person other then the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent to the manufacture or use of such space vehicle.".

SECTION 6 OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AUTHORIZATION ACT, 1970

[SEC. 6. (a) As used in this section—

[(1) The term "former emloyee"means any former officer or employee of the National Aeronautics and Space Administration, including consultants or part-time employees, whose salary rate at any time during the three-year period immediately preceeding the termination of his last employment with the National Aeronautics and Space Administration was equal to or greater than the minimum salary rate at such time for positions in grade GS-13.

[(2) The term "aerospace contractor" means any individual, firm, corporation, partnership, association, or other legal entity, which provides services and materials to or for the national Aeronautics and Space Administration in connection with any aerospace system under a contract directly with the National Aeronautics and Space Administration.

[(3) The term "services and materials" means either service or materials or services and materials which are provided as a part of or in connection with any aerospace system.

[(4) The term "aerospace system" includes, but is not limited to, any rocket, launch vehicle, rocket engine, propellant, spacecraft, command module, service module, landing module, tracking device, communications device, or any part or component thereof, which is used in either manned or unmanned spaceflight operations.

[(5) The term "contracts awarded" means contracts awarded by negotiations and includes the net amount of modifications to, and the exercise of options under, such contracts. It excludes all transactions amounting to less than $10,000 each.

[(6) The term "fiscal year" means a year beginning on 1 October and ending on 30 September of the next succeeding year.

[(b) Former Administration employees employed by aerospace contractors; administration employees previously employed by aerospace contractors.

[Under regulations to be prescribed by the Administrator:

[(1) Any former employee who during any fiscal year,

[(A) was employed by or served as a consultant or otherwise to an aerospace contractor for any period of time,

[(B) represented any aerospace contractor at any hearing, trial, appeal, or other action in which the United States was a party and which involved services and materials provided or to be provided to the National Aeronautics and Space Administration by such contractor, or

[(C) represented any such contractor in any transaction with the National Aeronautics and Space Administration involving services or materials provided or to be provided by such contractor to the National Aeronautics and Space Administration,

shall file with the Administrator, in such form and manner as the Administrator may prescribe, not later than February 15 of the next succeeding fiscal year, a report containing the following information:

[(1) His name and address.

[(2) The name and address of the aerospace contractor by whom he was employed or whom he served as a consultant or otherwise.

[(3) The title of the position held by him with the aerospace contractor.

[(4) A brief description of his duties and the work performed by him for the aerospace contractor.

[(5) His gross salary rate while employed by the National Aeronautics and Space Administration.

[(6) A brief description of his duties and the work performed by him while employed by the National Aeronautics and Space Administration during the three-year period immediately preceding his termination of employment.

[(7) The date of the termination of his employment with the National Aeronautics and Space Administration, and the date on which his employment, as an employee, consultant or otherwise, with the aerospace contractor began, and if no longer employed by such aerospace contractor, the date on which his employment with such aerospace contractor terminated.

[(8) Such other pertinent information as the Administrator may require.

[(2) Any employee of the National Aeronautics and Space Administration, including consultants or part-time employees, who was previously employed by or served as a consultant or otherwise to an aerospace contractor in any fiscal year, and whose salary rate in the National Aeronautics and Space Administration is equal to or greater than the minimum salary rate for positions in grade GS-13 shall file with the Administrator, in such form and manner and at such times as the Administrator may prescribe, a report containing the following information:

[(A) His name and address.

[(B) The title of his position with the National Aeronautics and Space Administration.

[(C) A brief description of his duties with the National Aeronautics and Space Administration.

[(D) The name and address of the aerospace contractor by whom he was employed or whom he served as a consultant or otherwise.

[(E) The title of his position with such aerospace contractor.

[(F) A brief description of his duties and the work performed by him for the aerospace contractor.

[(G) The date on which his employment as a consultant or otherwise with such contractor terminated and the date on which his employment as a consultant or otherwise with the National Aeronautics and Space Administration began thereafter.

[(H) Such other pertinent information as the Administrator may require.

[(c) Exceptions. (1) No former employee of the National Aeronautics and Space Administration shall be required to file a report under this section for any fiscal year in which he was employed by or served as a consultant or otherwise to an aerospace contractor if the total amount of contracts awarded by the National Aeronautics and Space Administration to such contractor during such year was less than $10,000,000; and no employee of the National Aeronautics and Space Administration shall be required to file a report under this section for any fiscal year in which he was employed by or served as a consultant or otherwise to an aerospace contractor if the total amount of contracts awarded to such contractor by the National Aeronautics and Space Administration during such year was less than $10,000,000.

[(2) No former National Aeronautics and Space Administration employee shall be required to file a report under this section for any fiscal year on account of employment with the National Aeronautics and Space Administration if such employment was terminated three years or more prior to the beginning of such fiscal year; and no employee of the National Aeronautics and Space Administration shall be required to file a report under this section for any fiscal year on account of employment with or services performed for an aerospace contractor if such employment was terminated or such services were performed three years or more prior to the beginning of such fiscal year.

[(3) No former employee shall be required to file a report under this section for any fiscal year during which he was employed by or served as a consultant or otherwise to an aerospace contractor at a salary rate of less than $15,000 per year; and no employee of the National Aeronautics and Space Administration, including consultants or part-time employees, shall be required to file a report under this section for any fiscal year during which he was employed by or served as a consultant or otherwise to an aerospace contractor at a salary rate of less than $15,000 per year.

[(d) Reports to Congress. The Administrator shall, not later than March 31 of each year, file with the President of the Senate and the Speaker of the House of Representatives a report containing a list of the names of persons who have filed reports with him for the preceding fiscal year pursuant to subsections (b)(1) and (b)(2) of this section. The Administrator shall include after each name so much information as he deems appropriate, and shall list the names of such persons under the aerospace contractor for whom they worked or for whom they performed services.

[(e) Termination of employment; filing reports under subsection (b)(1) or (2). Any former employee of the National Aeronautics and Space Administration whose employment with or services for an aerospace contractor terminated during any fiscal year shall be required to file a report pursuant to subsection (b)(1) of this section for such year if he would otherwise by required to file under such subsection; and any person whose employment with or services for the National Aeronautics and Space Administration terminated during any fiscal year shall be required to file a report pursuant to subsection (b)(2) of this section for such year if he would otherwise be required to file under such subsection.

[(f) Recordkeeping; availability of information. The Administrator shall maintain a file containing the information filed with him pursuant to subsections (b)(1) and (b)(2) of this section and such file shall be open for public inspection at all times during the regular workday.

[(g) Penalties. Any person who fails to comply with the filing requirements of this section shall be guilty of a misdemeanor and shall, upon conviction therof, be punished by not more than six months in prison or a fine of not more than $1,000, or both.

[(h) Commencement date. No person shall be required to file a report pursuant to this section for any year prior to the fiscal year 1971.]

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97TH CONGRESS | HOUSE OF REPRESENTATIVES | REPORT
1st Session | No. 97-351

AUTHORIZING APPROPRIATIONS TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOVEMBER 21 (legislative day, NOVEMBER 20), 1981.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany S. 1098]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the House to the bill (S. 1098) 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 Senate recede from its disagreement to the amendment of the House and agree to the same with an amendment as follows:

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

That there is hereby authorized to be appropriated to the National Aeronautics and Space Administration to become available October 1, 1981:

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

(1) Space Shuttle, $2,189,000,000;
(2) Space flight operations, $907,900,000;
(3) Expendable launch vehicles, $31,200,000;
(4) Physics and astronomy, $333,400,000;
(5) Planetary exploration, $215,300,000;
(6) Life sciences, $43,500,000;
(7) Space applications, $398,600,000;
(8) Technology utilization, $12,600,000;
(9) Aeronautical research and technology, $284,800,000;
(10) Space research and technology, $129,300,000; and

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(11) Tracking and data acquisition, $408,180,000.

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

(1) Modification of 12-foot pressure wind tunnel, Ames Research Center, $18,500,000;
(2) Modifications to space flight operations facility, Jet Propulsion Laboratory, $9,300,000;
(3) Rehabilitation of utility control system, various buildings, Lyndon B. Johnson Space Center, $680,000;
(4) Construction of waste material incinerator, John F. Kennedy Space Center, $895,000;
(5) Repair of operations and checkout building roof, John F. Kennedy Space Center, $825,000;
(6) Modifications for enhanced 20-inch supersonic wind tunnel, Langley Research Center, $2,950,000;
(7) Modifications for high pressure turbine corrosion and thermal fatigue testing, Lewis Research Center, $1,200,000;
(8) Modification and relocation of 26-meter antenna, STDN, Goldstone, California, $4,700,000;
(9) Relocation of DSS-44 antenna to Tidbinbilla, Australia, $2,200,000;
(10) Space Shuttle facilities at various locations as follows:
(A) Construction of solid rocket booster processing and segment storage facilities, John F. Kennedy Space Center, $12,400,000;
(B) Modifications to firing rooms, John F. Kennedy Space Center, $3,100,000;
(C) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, $2,785,000;
(D) Modifications to Building 30 for Shuttle operations, Lyndon B. Johnson Space Center, $650,000;
(E) Minor Shuttle-unique projects, various locations, $1,115,000;
(11) Repair of facilities at various locations, not in excess of $500,000 per project, $12,800,000;
(12) Rehabilitation and modification of facilities at various locations, not in excess of $500,000 per project, $17,700,000;
(13) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of $250,000 per project, $2,320,000; and
(14) Facility planning and design not otherwise provided for, $10,000,000.

(c) For "Research and program management", $1,114,300,000 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 hereby authorized 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 ad-

ditional 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 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 (13), 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 (14) 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 (i) the nature of such construction, expansion, or modification, (ii) the cost thereof including the cost of any real estate action pertaining thereto, and (iii) 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 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. Section 7 of title 18, United States Code, is amended by inserting at the end thereof the following new paragraph:

"(6) Any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies and the Convention on Registration of Objects Launched into Outer Space, while that vehicle is in flight, which is from the moment when all external doors are closed on Earth following embarkation until the moment when one such door is opened on Earth for disembarkation or in the case of a forced landing, until the competent authorities take over the responsibility for the vehicle and for persons and property aboard.".

SEC. 7. The National Aeronautics and Space Act of 1958, as amended, is amended by inserting at the end of section 305, the following new subsections:

"(k) Any object intended for launch, launched, or assembled in outer space shall be considered a vehicle for the purpose of section 272 of title 35, United States Code.

"(l) The use or manufacture of any patented invention incorporated in a space vehicle launched by the United States Government for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent for such use or manufacture.".

SEC. 8. Section 6 of the National Aeronautics and Space Administration Authorization Act, 1970, as amended (42 U.S.C. 2462), is repealed.

SEC. 9. Appropriations hereby authorized for space transportation system upper stages in section 1(a)(2) shall not be used to initiate sole-source procurement of a new upper stage until NASA in cooperation with other agencies has reviewed alternative systems and assessed competitive procurement of a new upper stage to satisfy national requirements, and until 30 days after reporting its findings to the authorizing committees of the House of Representatives and the Senate.

SEC. 10. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1982".

And the House agree to the same.

DON FUQUA,
GEORGE E. BROWN, Jr.,
RONNIE G. FLIPPO,
DAN GLICKMAN,
BILL NELSON,
LARRY WINN, Jr.,
BARRY M. GOLDWATER, Jr.,
H. C. HOLLENBECK,
Managers on the Part of the House.

BOB PACKWOOD,
BARRY GOLDWATER,
HARRISON H. SCHMITT,
HOWARD W. CANNON,
HOWELL HEFLIN,
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 House to the bill S. 1098 to authorize appropriations to the National Aeronautics and Space Administration for fiscal year 1982 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 disposition of the differences agreed upon by the managers and recommended in the accompanying conference report.

The NASA original request for fiscal year 1982 totaled $6,725,700,000 and the revised request totaled $6,122,200,000. The Senate authorized $6,222,900,000 and the House amendment authorized $6,122,120,000. The committee of conference agrees to a total authorization for fiscal year 1982 of $6,172,200,000 as follows:

SUMMARY OF ADJUSTMENTS TO S. 1098—NASA FISCAL YEAR 1982 AUTHORIZATION

(In thousands of dollars)

	Budget request	Revised budget request	House action	Senate action	Committee of conference
Research and development:					
Space Shuttle	2,230,000	2,194,000	2,134,000	2,189,000	2,189,000
Space flight operations	1,043,000	910,900	903,900	914,900	907,900
Expendable launch vehicles	31,200	31,200	31,200	31,200	31,200
Physics and astronomy	451,400	325,400	350,400	333,400	333,400
Planetary exploration	256,100	215,300	215,200	215,300	215,300
Life sciences	49,200	43,500	49,200	43,500	43,500
Space applications	472,900	372,900	410,900	398,600	398,600
Technology utilization	14,600	4,600	12,600	12,600	12,600
Aeronautical research and technology	323,600	264,800	264,800	316,000	284,800
Space research and technology	141,000	125,300	129,300	130,300	129,300
Energy technology	4,400	0	2,000	0	0
Tracking and data acquisition	435,200	415,200	400,200	415,200	408,180
Total	5,452,600	4,903,100	4,903,700	5,000,000	4,953,780
Construction of facilities	136,800	104,800	104,120	104,800	104,120
Research and program management	1,136,300	1,114,300	1,114,300	1,118,100	1,114,300
Grand total	6,725,700	6,122,200	6,122,120	6,222,900	6,172,200

The Conferees are concerned about the continuing downward trend (in real dollars) of the NASA budget. A strong civilian science and technology base to which NASA is a major contributor is essential to sustaining a strong economy and a credible national defense. Federal expenditures on our national space program are an investment in our future and lead to increased productivity, increased employment and contribute greatly to a positive balance of trade.

As a result of budget constraints that have been placed on NASA over the past few years, additional reductions in this and future fiscal years threaten even further the ability of the agency to fulfill the mandate of the National Aeronautics and Space Act of 1958. The conferees strongly believe that a balanced civilian space program as set out in the National Aeronautics and Space Act of 1958 is even more relevant today and direct NASA to do everything possible to maintain an effective balanced space program.

The Conferees realize that under the current budgetary situation priorities must, however, be set. Consequently, the Committee of Conference recognizes that the space shuttle program is the highest priority and therefore expects NASA to maintain its current delivery schedule for orbiter vehicle 104 and proceed with the current flight rate.

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

1. NASA requested $2,194,000,000, a reduction of $36 million from the original budget request, for the Space Shuttle program.

The House authorized $2,134,000,000, including a reduction of $60 million in changes and systems upgrading activities.

The Senate authorized $2,189,000,000, a reduction of $5 million from the revised budget request, reducing funding for the fifth orbiter..

The Committee of Conference adopts the Senate position to assure that the delivery schedule for orbiter vehicle 104 is maintained. The Conferees further direct that, within available funds, NASA should procure long-lead materials necessary to maintain the most efficient production schedule for a fifth Space Shuttle orbiter.

2. NASA requested $910,900,000, a reduction of $132.1 million from the original budget request, for the Space Flight Operations program.

The House authorized $903,900,000, a reduction of $7 million from the NASA revised request. This reduction is the net result from a decrease of $7 million in STS upper stage development, an increase of $8 million for solar electric propulsion (SEPS) advanced technical development, an increase of $5 million for advanced program studies, and a reduction of $13 million in upper stage operations.

The Senate authorized $914,900,000, an increase of $4 million from the NASA request. This additional funding continues SEPS advanced technical development and design activities.

The Conference substitute authorizes $907,900,000 including $12,800,000 for advanced programs and $4,000,000 for solar electric propulsion advanced technical development activities. The Conferees expect NASA to maintain as highest priority the orbiter delivery schedules and flight rates proposed in the March revised 1982 budget request. Although the Conferees recognize the broad capabilities that a Centaur upper stage would provide, the immediate driver for Centaur development is the Galileo mission launch in 1985. Consequently, commitment to launch Galileo in 1985 is essential before proceeding with Centaur development.

3. NASA requested $325,400,000, a reduction of $126 million from the original budget request, for the Physics and Astronomy program.

The House authorized $350,400,000, increasing the revised request by $25 million. The House included $15 million to allow development of the International Solar Polar Mission (ISPM) in a timely manner for a two-spacecraft mission, and $10 million for increased support for Shuttle/Spacelab instrument development.

The Senate authorized $333,400,000, an increase of $8 million over the NASA revised budget request to provide additional support for Shuttle/Spacelab instrument development and included adequate funding for ISPM to maintain the option for a two-spacecraft mission.

The Conferees adopt the Senate position and strongly encourage the NASA Administrator to honor U.S. commitments with respect to the ISPM mission. If the full mission cannot be supported, the United States should honor its international commitments for instrument development, launch, and tracking and data services for the European spacecraft.

4. NASA requested $215,300,000, a reduction of $40.8 million from the original budget request, for the Planetary Exploration program.

The House authorized $215,200,000, reducing the revised request by $0.1 million. The House reduced the funds for the Galileo program by $5.1 million and incuded a contingent authorization of $5 million to retain an option for a Halley Comet mission. The House authorized NASA, within available funds and after appropriate notification, to proceed with the Infrared Telescope Mid-Level Facility.

The Senate authorized the revised budget request, $215,300,000.

The Conferees adopt the Senate position but authorizes NASA to proceed with the Infrared Telescope Mid-Level Facility within available funds. The Conferees in providing for a fully funded Galileo mission want to reemphasize the importance of a vigorous planetary exploration program. This is an area in which the U.S. has led the world yet, looking ahead, the planetary science community needs new missions to maintain a viable program. The United States faces a 50 month gap during which no new planetary data will be returned from United States spacecraft thus relinquishing our leadership to other countries. For example, the Soviets, the Japanese and the European Space Agency are all planning Halley Comet missions. While it is recognized that NASA must set internal priorities within current budget constraints; the conferees expect NASA to maintain a balance among space science and planetary exploration and the overall objectives of the agency.

5. NASA requested $43,500,000, a reduction of $5.7 million from the original budget request, for the Life Sciences program.

The House authorized $49,200,000, restoring the funding to the level of the original request.

The Senate authorized the revised budget request, $43,500,000.

The Committee of Conference adopts the Senate position but is concerned that continuing reductions in these efforts will delay the availability of live support technology to support future long-duration manned space flight.

6. NASA requested $372,900,000 for the Space Applications program, a reduction of $100 million from the original budget request.

The House authorized $410,900,000. This funding allows for initiation of a geological applications program ($10 million) in the re-

source observations area; development of upper atmospheric research satellite experiments at a reduced level ($15 million); continued work in technology transfer ($9 million); an increase in materials processing activities ($4 million), and an increase for communication and information system activities ($5 million).

The Senate authorized $398,600,000 which allows for development of upper atmospheric research satellite experiments at a reduced level of $15 million, continued technology transfer work at a level of $8 million, an increase in materials processing activities of $4 million, and an increase of $3.7 million for the proposed operational evaluation of the search and rescue project.

The Committee on Conference adopts the Senate position. The Conferees recognize that NASA's space applications program has significantly contributed to our understanding of weather and climate processes and atmospheric changes, enabling better forecasting; monitoring of agricultural production; identifying fuel and non-fuel minerals; and improved land use management. These benefits, in addition to research and development in materials processing and communications are critical elements of utilizing space technology for direct terrestrial applications.

The Conferees are concerned about any de-emphasis of civil space applications technology and therefore urge NASA to continue to maintain a strong research and technology program and ensure that these technologies are effectively made available for use of other government agencies and for private sector commercialization.

7. NASA requested $264,800,000 for the aeronautical research and technology programs, a reduction of $58.8 million from the original budget request.

The House authorized the revised budget request, $264,800,000.

The Senate authorized $316,000,000 for the aeronautical research and technology program, increasing the revised request by $51.2 million. This increase will be applied to various areas including advanced turboprop (or prop-fan), advanced aircraft composites, high speed aircraft technology, commuter aircraft technology, critical aircraft resources, active controls, technology, and laminar flow control technology.

The Conferees are conerned with a recent trend toward lower levels of Federal support for aeronautical research and technology development. NASA's research and technology for decades has been the wellspring for U.S. aviation development from which the nation's military, commercial and general aviation leadership has evolved. This has meant millions of jobs for Americans with a wide range of trade and professional skills in every region of the country. It has meant billions in favorable balance of trade over the years. In 1980 alone the aviation industry's net contribution to foreign trade has been $13 billion. It has meant billions of dollars returned to the Federal treasury in tax revenues.

The Conferees believe that the Nation's economic recovery program will be served best by moderating the proposed reductions in those highly selective areas where government outlays actually constitute an investment in future international competitiveness. The aviation industry stands out as a clear case in point. Its ability to maintain its preeminent position in the world should be stengthened, not weakened. That leadership is now for the first time in the history of aviation severely threatened by advanced technology developments through consortia of governments and industry in Europe and Japan. The Conferees are unwilling to risk future disaster in this industry of the kind already encountered in several of the Nation's strongest industries.

Accordingly, the Conference substitute authorizes $284,800,000, with the increase above the revised request to be used for acceleration of advanced turboprop technology, large composite primary aircraft structures, high speed transport technology (structures, aerodynamics and propulsion), commuter aircraft technology, critical aircraft resources, active controls technology, and exploratory or feasibility studies pertaining to a possible future numerical aerodynamic simulator.

8. NASA requested $125,300,000 for the space research and technology program, a reduction of $15.7 million from the original budget request.

The House authorized $129,300,000, increasing the revised request by $4 million. This includes increases of $2 million in each of the two following areas: Advanced chemical propulsion and information systems technology.

The Senate authorized $130,300,000, increasing the revised request by $5 million in the research and technology base.

The Conference authorizes $129,300,000, including $4 million for advanced chemical propulsion, information systems, space power, and electric and laser propulsion technologies.

9. NASA requested no funding for the Energy Technology program, a reduction of $4.4 million from the original budget request.

The House authorized $2,000,000, an increase of $2 million over the NASA revised request, to continue energy technology at a reduced level.

The Senate authorized the revised budget request for no funding.

The Committee on Conference adopts the Senate position. The Conferees recognize past contributions of space technology to solve some of our energy problems and the potential for continued contributions in the area of solar technologies, fuel cell technologies and energy conversion efficiencies. Therefore, the conferees request NASA to review its role in conducting its own research on energy technologies that result from space related research and development.

10. NASA requested $415,200,000 for the Tracking and Data Acquisition program, a reduction of $20 million from the original budget request.

The House authorized $400,200,000, a reduction of $15 million from the revised request in operations activities.

The Senate authorized the revised budget request, $415,200,000.

The Committee on Conference authorizes $408,180,000 for tracking and data acquisition activities.

11. NASA requested $104,800,000 for Construction of Facilities, a decrease of $32 million from the original budget request.

The House authorized $104,120,000, a $0.68 million decrease from the revised request resulting in deferrals in the following three projects: (a) The Construction of an Addition to the Rehabilitation of Environmental Research Laboratory, Building 2423 for $190,000; (b) The Construction of an Occupational Health Facility Addition

to Building 1100 for $245,000; and (c) Construction of Engineering Services Building for $245,000.

The Senate authorized the revised request.

The Conferees authorized $104,120,000 for construction of facilities activities including $2,320,000 for minor construction of new facilities and additions to facilities.

12. NASA requested $1,114,300,000 for Research and Program Management activities, a decrease of $22 million from the original request.

The House authorized the revised request.

The Senate authorized $1,118,100,000, an increase of $3.8 million over the revised request.

The Committee of Conference adopts the House position.

13. NASA recommended the inclusion of section 7 which amends section 305 of the National Aeronautics and Space Act of 1958.

In agreement with NASA the House amended section 7 to clarify its provisions and to conform them to existing law.

The Senate adopted the original NASA language.

The Committee of Conference adopts the House language.

14. The House amendment included a new section 9 which would prohibit the use of funds for the sole source procurement of a new upper stage until NASA reassesses the requirements of other agencies; reassesses the viability of competitive procurement; and reports its findings to the authorizing committees of the House and Senate.

The Senate bill did not include the foregoing language.

The Committee of Conference adopts the House language but includes a 30 day reporting period before NASA may proceed with a new upper stage development after reporting its findings.

15. The House amendment included a new section 10 which would permit use of $5 million of the funds authorized in Section 1(a)(5) for the Halley Intercept Mission only if such funds were requested in a message to Congress from the Administrator.

The Senate bill did not include the foregoing section.

The Committee of Conference adopts the Senate position.

16. The House amendment included general provision language as provided in the original bill submitted by NASA.

The Senate bill included a number of technical amendments to the bill submitted by NASA.

The Committee of Conference adopts the House language.

DON FUQUA,
GEORGE E. BROWN, Jr.,
RONNIE G. FLIPPO,
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Managers on the Part of the House.

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HARRISON H. SCHMITT,
HOWARD W. CANNON,
HOWELL HEFLIN,
Managers on the Part of the Senate.

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Public Law 97-96
97th 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.

Dec. 21, 1981
[S. 1098]

Be it enacted by the Senate of 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, 1981:

National Aeronautics and Space Administration Authorization Act, 1982.

(a) For "Research and development", for the following programs:
(1) Space Shuttle, $2,189,000,000;
(2) Space flight operations, $907,900,000;
(3) Expendable launch vehicles, $31,200,000;
(4) Physics and astronomy, $333,400,000;
(5) Planetary exploration, $215,300,000;
(6) Life sciences, $43,500,000;
(7) Space applications, $398,600,000;
(8) Technology utilization, $12,600,000;
(9) Aeronautical research and technology, $284,800,000;
(10) Space research and technology, $129,300,000; and
(11) Tracking and data acquisition, $408,180,000.

Facilities construction.

(b) For "Construction of facilities", including land acquisition, as follows:
(1) Modification of 12-foot pressure wind tunnel, Ames Research Center, $18,500,000;
(2) Modifications to space flight operations facility, Jet Propulsion Laboratory, $9,300,000;
(3) Rehabilitation of utility control system, various buildings, Lyndon B. Johnson Space Center, $680,000;
(4) Construction of waste material incinerator, John F. Kennedy Space Center, $895,000;
(5) Repair of operations and checkout building roof, John F. Kennedy Space Center, $825,000;
(6) Modifications for enhanced 20-inch supersonic wind tunnel, Langley Research Center, $2,950,000;
(7) Modifications for high pressure turbine corrosion and thermal fatigue testing, Lewis Research Center, $1,200,000;
(8) Modification and relocation of 26-meter antenna, STDN, Goldstone, California, $4,700,000;
(9) Relocation of DSS-44 antenna to Tidbinbilla, Australia, $2,200,000;
(10) Space Shuttle facilities at various locations as follows:
(A) Construction of solid rocket booster processing and segment storage facilities, John F. Kennedy Space Center, $12,400,000;
(B) Modifications to firing rooms, John F. Kennedy Space Center, $3,100,000;
(C) Modification of manufacturing and final assembly facilities for external tanks, Michoud Assembly Facility, $2,785,000;

(D) Modifications to Building 30 for Shuttle operations, Lyndon B. Johnson Space Center, $650,000;
(E) Minor Shuttle-unique projects, various locations, $1,115,000;
(11) Repair of facilities at various locations, not in excess of $500,000 per project, $12,800,000;
(12) Rehabilitation and modification of facilities at various locations, not in excess of $500,000 per project, $17,700,000;
(13) Minor construction of new facilities and additions to existing facilities at various locations, not in excess of $250,000 per project, $2,320,000; and
(14) Facility planning and design not otherwise provided for, $10,000,000.

Research and program management.

(c) For "Research and program management", $1,114,300,000 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 hereby authorized 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.

Scientific consultations or extraordinary expenses.

(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 (13), 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,

Report to congressional committees.

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 (14) 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 (i) the nature of such construction, expansion, or modification, (ii) the cost thereof including the cost of any real estate action pertaining thereto, and (iii) 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.

Transfer of funds.

Report to congressional committees.

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,

Notification to congressional committees.

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.

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

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. Section 7 of title 18, United States Code, is amended by inserting at the end thereof the following new paragraph:

"(6) Any vehicle used or designed for flight or navigation in space and on the registry of the United States pursuant to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies and the Convention on Registration of Objects Launched into Outer Space, while that vehicle is in flight, which is from the moment when all external doors are closed on Earth following embarkation until the moment when one such door is opened on Earth for disembarkation or in the case of a forced landing, until the competent authorities take over the responsibility for the vehicle and for persons and property aboard.".

42 USC 2451 note. 42 USC 2457.

SEC. 7. The National Aeronautics and Space Act of 1958, as amended, is amended by inserting at the end of section 305, the following new subsections:

"(k) Any object intended for launch, launched, or assembled in outer space shall be considered a vehicle for the purpose of section 272 of title 35, United States Code.

"(l) The use or manufacture of any patented invention incorporated in a space vehicle launched by the United States Government for a person other than the United States shall not be considered to be a use or manufacture by or for the United States within the meaning of section 1498(a) of title 28, United States Code, unless the Administration gives an express authorization or consent for such use or manufacture.".

SEC. 8. Section 6 of the National Aeronautics and Space Administration Authorization Act, 1970, as amended (42 U.S.C. 2462), is repealed. Repeal.

SEC. 9. Appropriations hereby authorized for space transportation system upper stages in section 1(a)(2) shall not be used to initiate sole-source procurement of a new upper stage until NASA in cooperation with other agencies has reviewed alternative systems and assessed competitive procurement of a new upper stage to satisfy national requirements, and until 30 days after reporting its findings to the authorizing committees of the House of Representatives and the Senate.

SEC. 10. This Act may be cited as the "National Aeronautics and Space Administration Authorization Act, 1982". Short title.

Approved December 21, 1981.

LEGISLATIVE HISTORY—S. 1098 (H.R. 1257):

HOUSE REPORTS: No. 97-32 accompanying H.R. 1257 (Comm. on Science and Technology) and No. 97-351 (Comm. of Conference).
SENATE REPORT No. 97-100 (Comm. on Commerce, Science, and Transportation).
CONGRESSIONAL RECORD, Vol. 127 (1981):
May 21, considered and passed Senate.
June 23, H.R. 1257 considered and passed House; proceedings vacated and S. 1098, amended, passed in lieu.
Nov. 23, Senate agreed to conference report.
Dec. 8, House agreed to conference report.

97TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
1st Session } { No. 97-162

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATION BILL, 1982

JUNE 25, 1981.—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. 4034]

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, 1982, and for other purposes.

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

Department or agency	Appropriations, 1981	Budget estimates, 1982	Recommended in bill	Bill compared with— Appropriations, 1981	Bill compared with— Budget estimates, 1982
(1)	(2)	(3)	(4)	(5)	(6)
American Battle Monuments Commission	$9,585,000	$10,507,000	$10,507,000	+$922,000	
Cemeterial expenses, Army	5,032,000	5,086,000	5,086,000	+54,000	
Consumer Information Center	1,381,000	1,314,000	1,314,000	−67,000	
Consumer Product Safety Commission	42,140,000	32,983,000	32,983,000	−9,157,000	
Council on Environmental Quality	2,542,000	1,044,000	1,044,000	−1,498,000	
Department of Housing and Urban Development	31,031,862,653	26,563,345,500	26,331,481,500	−4,700,381,153	−$231,864,000
Department of the Treasury	4,664,772,000	4,577,869,000	4,632,620,000	−32,152,000	+54,751,000
Environmental Protection Agency	3,979,425,600	1,419,447,000	1,429,606,000	−2,549,819,600	+10,159,000
Federal Emergency Management Agency [1]	625,474,000	539,463,000	535,463,000	−90,011,000	−4,000,000
Federal Home Loan Bank Board [2]	(57,465,000)	(60,890,000)	(60,890,000)	(+3,425,000)	
National Aeronautics and Space Administration	5,522,688,000	6,122,200,000	6,133,900,000	+611,212,000	+11,700,000
National Commission on Air Quality	2,000,000			−2,000,000	
National Consumer Cooperative Bank	17,900,000		5,000,000	−12,900,000	+5,000,000
National Credit Union Administration		100,000,000	100,000,000	+100,000,000	
National Institute of Building Sciences	613,000	500,000	500,000	−113,000	
National Science Foundation	1,022,359,000	1,033,500,000	1,103,500,000	+81,141,000	+70,000,000
Neighborhood Reinvestment Corporation	12,459,000	14,950,000	13,950,000	+1,491,000	−1,000,000
Office of Consumer Affairs	2,256,000	2,000,000	2,000,000	−256,000	
Office of Science and Technology Policy	2,063,000	1,793,000	1,793,000	−270,000	
Selective Service System	24,654,000	21,174,000	20,000,000	−4,654,000	−1,174,000
Veterans Administration	22,609,711,000	22,675,619,000	22,952,347,000	+342,636,000	+276,728,000
Total	69,578,917,253	63,122,794,500	63,313,094,500	−6,265,822,753	+190,300,000

[1] Excludes 1982 estimates of $125,658,000 not considered.
[2] Limitation on corporate funds.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1981 appropriation	$4,336,288,000
Estimate, 1982	4,903,100,000
Recommended in bill	4,938,100,000
Increase above estimate	+35,000,000

The Committee is recommending an appropriation of $4,938,100,000 which is an increase of $35,000,000 above the revised budget request. The Committee recognizes that because of the major reductions in this account from the original budget proposal, it is not possible to restore significant funding to every area. In view of that, and rather than earmarking funds restored for specific projects, the Committee is recommending the above increase to be applied at the agency's discretion in the following program areas only:

1. Solar electric propulsion system (SEPS)
2. International solar polar mission (ISPM)
3. Technology transfer
4. Technology utilization
5. Advanced programs
6. Aeronautics
7. Infrared telescope mid-level facility
8. Communications (search and rescue)

CONSTRUCTION OF FACILITIES

1981 appropriation	$115,000,000
Estimate, 1982	104,800,000
Recommended in bill	95,800,000
Decrease below estimate	−9,000,000

The Committee recommends $95,800,000 for construction of facilities in 1982. This is a decrease of $9,000,000 below the budget request. The funds provided are as requested with the following exceptions:

—a decrease of $8,000,000 of the $9,300,000 requested for modifications to the Space Flight Operations Facility at the Jet Propulsion Laboratory. The project is partially justified on the basis that the facility "now requires extensive modifications to support future programs." It is noted that there are no immediate future missions with the exception of Project Galileo which is not scheduled for launch until 1985. The Committee believes, therefore, that the existing facility is sufficient to meet any immediate on-going requirements. However, an appropriation of $1,300,000 has been included to protect the most critical problems of hazards to personnel or equipment.

—a decrease of $1,000,000 in minor construction to be applied at the agency's discretion.

RESEARCH AND PROGRAM MANAGEMENT

1981 appropriation	$1,071,400,000
Estimate, 1982	1,114,300,000
Recommended in bill	1,100,000,000
Decrease below estimate	−14,300,000

The Committee recommends $1,100,000,000 for research and program management in 1982. This is a decrease of $14,300,000 below the budget estimate. The reduction should be applied on a priority basis to contractual and consultant services, travel and public affairs. In addition, part of the reduction should be absorbed through a higher lapse rate than is assumed in the 1982 budget. The lapse rate for NASA has historically been higher than anticipated in the budget. This is best illustrated by the agency's request to reprogram $15,022,000 from personnel compensation and benefits to other object classes in fiscal year 1981.

TITLE IV

GENERAL PROVISIONS

The Committee recommends, with the following changes, that the general provisions applicable to the Department and agencies carried in the current fiscal year be continued in fiscal year 1982.

Section 412, reducing the budget authority by two per centum, is not included in the bill.

Section 414, limiting the obligation of budget authority to not more than 30 per centum for the last quarter of the fiscal year, is not included in the bill.

Section 415, dealing with unresolved audits, has not been included in the bill.

Section 416, urging each department and agency to improve the collection of overdue debts, has not been included in the bill.

Section 417, requiring outlay schedules and reports, has not been included in the bill.

Section 418, reducing public relations or advertising activities by 10 per centum, has not been included in the bill.

In addition, the Committee recommends two new provisions as follows:

SEC. 413. Unless otherwise provided for in this Act, no part of any appropriation contained in this Act shall be available for any activity in excess of amounts set forth in the budget estimates submitted for the appropriations without the approval of the Committees on Appropriations.

SEC. 414. No part of any appropriation contained in this Act shall be available for the payment of overtime for positions carried in the general schedule at a level higher than GS–9.

INFLATIONARY IMPACT STATEMENT

Clause 2(l)(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 occurs, 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 $63,313,094,500. This is $190,300,000 above the President's request. Included in the total recommended are funds for veterans benefits, 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 Consumer Product Safety Commission, the Council on Environmental Quality, the Environmental Protection Agency, the

Federal Emergency Management Agency, the National Aeronautics and Space Administration, the National Consumer Cooperative Bank, 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 administrative provisions under Veterans Administration. Some of these provisions could possibly be construed as changing the application of existing law.

6. Sections 401 through 414 of title IV of the bill are general provisions 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 provision on pages 2 and 3, in connection with annual contributions for assisted housing, provides that certain authorities contained in previous acts shall be merged with authority provided in this bill. This could be construed as indirectly changing the application of existing law.

9. The appropriation language on page 3, in connection with the rent supplement program, reduces the uncommitted balances of previously provided authority by not more than $30,500,000.

10. 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.

11. The provision on page 5, 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.

12. The language on page 5, in connection with troubled projects operating subsidy, permitting the use of excess rental charges and, under certain circumstances, assistance payments to an owner of a multifamily housing project assisted but not insured under the National Housing Act could be construed as changing the application of existing law.

13. The appropriation language on page 6, in connection with the Federal Housing Administration Fund, limits additional commitments to guarantee loans.

14. The appropriation language on page 7, in connection with nonprofit sponsor assistance, limiting direct loans could be construed as changing the application of existing law.

15. The appropriation language on page 7, in connection with the special assistance functions fund, limiting obligations could be construed as changing the application of existing law.

16. The appropriation language on page 8, in connection with guarantees of mortgage-backed securities, limits additional commitments to issue guarantees.

17. The appropriation language on pages 9 and 10, in connection with community development grants, limiting expenses for planning and management development and administration activities could be construed as changing the application of existing law. Language has also been included limiting commitments to guarantee loans.

18. The appropriation language on page 10, in connection with urban development action grants, extends the availability of previously appropriated funds.

19. The appropriation language on page 9, in connection with the Rehabilitation Loan Fund, provides that the revolving fund shall consist of collections, unexpended balances of prior appropriations, and other amounts and could be construed as changing the application of existing law.

20. The appropriation language of page 12, in connection with fair housing assistance, limits the availability of funds and could be construed as changing the application of existing law.

21. The provision on page 15, in connection with salaries and expenses of the Environmental Protection Agency, limits the use of funds for purposes of resource conservation and recovery panels.

22. The provision on page 15, in connection with abatement, control and compliance, limits the availability of funds for purposes of the Resources Conservation and Recovery Act, as amended.

23. The limitation on page 16, in connection with the Hazardous Substance Response Trust Fund, limits administrative expenses and could be construed as changing existing law.

24. The provision on page 20, in connection with the National Flood Insurance Fund, limits operating expenses, which could be construed as changing existing law.

25. The appropriation language on page 21, 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.

26. The language on page 23, in connection with self-help development, limiting the amount of loans could be construed as changing the application of existing law.

27. The language on page 23, in connection with the National Consumer Cooperative Bank Fund, limiting the amounts of loans could be construed as changing the application of existing law.

28. The provisions on pages 23 and 24, in connection with the National Credit Union Administration, Central Liquidity Facility, limiting borrowing authority, direct loans and administrative expenses could be construed as changing the application of existing law.

29. The provisions on page 25, 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.

30. The provision on pages 25 and 26, in connection with science education activities, could require proportional reductions in legislative ear-markings. This could be construed as changing the application of existing law.

31. The provisions on page 27, in connection with the Selective Service System, permitting the President to exempt the Agency from apportionment restrictions of the Budget and Accounting Act of 1921, as amended, and limiting obligations to $1,000,000 per month if continuous registration is ceased, could be construed as changing existing law.

32. The appropriation language on page 28, in connection with the New York City loan guarantee program, limits commitments on loan guarantees and could be construed as changing existing law.

33. The provision on page 29, in connection with readjustment benefits, eliminates certain benefits.

34. The appropriation language for general operating expenses on page 31 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.

35. The language on page 32, in connection with construction, major projects, disapproves the deferral of the nursing home care project in Washington, D.C.

36. The appropriation language for construction, minor projects, on page 32 provides that unobligated balances of previous appropriations may be used for any project with an estimated cost of less than $2,000,000.

37. The appropriation language on page 34, in connection with the direct loan revolving fund, limits loans and could, under certain circumstances, be construed as changing the application of existing law.

38. The provision on page 37, in connection with corporations, requires release in an appropriation act of loans and mortgage purchase authority not otherwise required by law.

39. The appropriation language on page 37, in connection with the limitation on administrative and nonadministrative expenses, Federal Home Loan Bank Board, provides for examination of Federal and state chartered institutions and for the training of state savings and loan examiners.

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 provides comparisons between the new budget authority targets set forth in the first concurrent resolution on the fiscal year budget, as allocated by the Committee on Appropriations under section 302 of the Act, and the budget authority contained in the accompanying bill:

Subcommittee target	$64,405,000,000
Committee bill	63,313,094,500
Difference (over target (+) under target (−))	−1,091,905,500

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 5 year projections of the outlays associated with the budget authority provided in the accompanying bill:

Budget authority	$63,313,094,500
Outlays:	
1982	32,637,615,000
1983	7,974,356,000
1984	2,480,383,000
1985	1,235,154,000
1986	774,613,000
Future years	18,210,973,500

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 by the accompanying bill for financial assistance to State and local governments are as follows:

Fiscal year 1982 new budget authority	$24,777,930,000
Fiscal year 1982 outlays resulting therefrom	1,341,721,000

Calendar No. 226

97TH CONGRESS } SENATE { REPORT
1st Session } { No. 97-163

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT—INDEPENDENT AGENCIES APPROPRIATION BILL, 1982

JULY 23 (legislative day, JULY 8), 1981.—Ordered to be printed

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

REPORT

[To accompany H.R. 4034]

The Committee on Appropriations, to which was referred the bill (H.R. 4034) 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, 1982, 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

	Fiscal year 1982
Amount of bill as passed by House	$62,599,958,500
Amount of change by Committee	−2,057,440,300
Amount of bill as reported to Senate	60,542,518,200
Amount of appropriations to date, 1981	69,578,917,253
Amount of budget estimates, 1982	63,248,452,500
Under estimates for 1982	2,705,934,300
Under appropriations for 1981	9,036,399,053

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

1981 appropriation	$4,336,288,000
1982 budget estimate	4,903,100,000
House allowance	4,938,100,000
Committee recommendation	4,994,500,000

The Committee recommends an appropriation of $4,994,500,000 in fiscal year 1982 for the research and development activities of the National Aeronautics and Space Administration. This amount is $91,400,000 more than the budget estimate and $56,400,000 more than the House allowance.

PROGRAM DESCRIPTION

The objectives of the National Aeronautics and Space Administration program of research and development are to extend our knowledge of the Earth, its space environment, and the universe; to expand the practical applications of space technology; to develop, operate, and improve manned and unmanned space vehicles; to provide technology for improving the performance of aeronautical vehicles while minimizing their environmental effects and energy consumption; and to assure continued development of the aeronautics and space technology necessary to accomplish national goals. The research and development program at NASA consists of the following activities:

Space transportation systems.—This activity provides all of the transportation and associated support capabilities required to conduct space operations. The major focus of NASA's space transportation program is currently the development and testing of the Space Shuttle—the first reusable space vehicle and the principal element of a versatile space transportation system designed to provide domestic and international users with round trip access to space for the 1980's and beyond. The Shuttle consists of a reusable delta-wing orbiter vehicle with three main engines, an expendable propellant tank, and reusable twin solid rocket boosters. It will provide unique capabilities for placement and retrieval of satellites, in-orbit servicing of satellites, and delivery to Earth orbit of payloads and propulsive stages for higher altitude and planetary missions. The primary development activities in fiscal year 1982 will support the remaining flight tests and completion of activities related to hardware life and operational capabilities. Fiscal year 1982 will also be a year of extensive effort toward fabrication and assembly of production hardware on the three remaining orbiters. In space transportation systems operations, efforts will continue on procurement, assembly and checkout of the solid rocket boosters, external tank, and other hardware as well as standardized flight plans, avionics software, flight control systems, and crew procedures. The appropriation will also provide expendable launch vehicles and services required during the transition to the space transportation system.

Space science.—This 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, and the other stars of our galaxy and universe. Results from these investigations contribute to our understanding of the universe, including the key questions of life, matter, and energy. In fiscal year 1982 work will continue on the development of the space telescope project, the Gamma Ray Observatory, the Galileo project, spacelab payloads, several explorer projects, and various research efforts. Early detailed design work on the Venus orbiting imaging radar mission is proposed to be initiated.

Space and terrestrial applications programs.—These programs are designed to identify, develop, demonstrate, and transfer space technology, systems and other capabilities which can be effectively used for practical benefits. Space applications research and development covers the areas of resource observations, environmental observations, materials processing in space, communications and information systems, and technology utilization activities, which 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 activities planned for fiscal year 1982 are: continued development of the Landsat-D Earth resources satellite, which is scheduled for launch in late 1982; continued development of the Earth radiation budget experiment satellite system in cooperation with other Federal agencies; development of the halogen occultation experiment; and continued work in the areas of materials processing, communications research and development, and the utilization of NASA-generated technology by both the public and private sectors.

Aeronautics and space technology.—The objective of the aeronautics program is the advancement of aeronautical technology to insure safer, more economical, efficient and environmentally acceptable air transportation systems which are responsive to current and projected national needs. The program is designed to help maintain our competitive position in the international aviation marketplace and to aid the military in maintaining the superiority of the Nation's military aircraft. In fiscal year 1982, the budget request continues the essential disciplinary research and technology activities including: development of a strong research and technology base in aerodynamics, propulsion, guidance and controls, human-vehicle interaction, materials, and structures, and continued focused technology activities for each of the major classes of aeronautical vehicles. The objective of the space research and technology program is to provide the technology base necessary to support current and future space activities, to formulate technology options for the future, and to advance technology required to further reduce the costs of space activities.

Tracking and data acquisition.—This program provides for continuation of tracking and data acquisition support for Earth orbital spacecraft, planetary missions, sounding rockets and research aircraft. This support is provided by a worldwide network of NASA ground stations, interconnected by a communications system which provides the capability for instantaneous transmission of data and critical commands between spacecraft and the flight control centers. Facilities are also provided to process into meaningful form the scientific, applications, and engineering data which are collected from flight projects. A major aspect of the tracking and data acquisition program in the future will be the tracking and data relay satellite system (TDRSS) which will support essentially all Earth orbital spacecraft missions and improve NASA's Earth orbital tracking and data acquisition capabilities. NASA will acquire this capability through an arrangement under which the contractor will establish the system and provide NASA with TDRSS services beginning in fiscal year 1983. In the interim, the Agency's spacecraft tracking and data network will support Earth orbital scientific and applications spacecraft and all Shuttle orbital flight tests as well as international missions and missions of other U.S. agencies. The deep space network tracking system will continue to support a number of planetary missions in 1982 including the Pioneer 6–11 missions, Voyager 1 and 2, and Pioneer Venus.

COMMITTEE RECOMMENDATION

The Committee has provided an additional $91,400,000, above the budget request for NASA's research and development. This partially restores the $549,500,000 reduction in this account contained in the March budget revisions. The amount provided is $7,200,000 less than authorized under Senate bill S. 1098. A comparison of the changes from the administration's request follows:

Activity	Administration's request	House recommendation	Senate recommendation
Research and development	$4,903,100,000	[1] $4,938,100,000	$4,994,500,000
Space Shuttle	2,194,000,000	2,194,000,000	2,189,000,000
Space flight operations	910,900,000	910,900,000	914,900,000
Physics and astonomy	325,400,000	325,400,000	340,400,000
Space applications	372,900,000	372,900,000	395,600,000
Technology utilization	4,600,000	4,600,000	12,600,000
Aeronautic research and technology	264,800,000	264,800,000	309,800,000
Mid-level facility			1,700,000

[1] Contains $35,000,000 above the budget to be applied at the discretion of NASA to the: solar electric propulsion system (SEPS); international solar polar mission (ISPM); technology transfer; technology utilization; advanced programs; aeronautics; infrared telescope mid-level facility and communications (search and rescue).

The Committee has included an additional $4,000,000 for the solar electric propulsion system program in order to keep this technological development effort going.

An additional $10,000,000 was provided for the international solar polar mission. House report 97–124 directs the National Academy of Sciences to conduct an analysis of options and report back by September 11, 1981. The additional funds coupled with the funds requested, will keep the fully instrumented U.S. spacecraft option viable until a final determination can be made on the mission configuration.

The Committee has also included additional funding for the following programs: Shuttle/spacelab payload development (+$5,000,000); upper atmospheric research satellites experiment (+$10,000,000); technology transfer (+$5,000,000); materials processing (+$4.000,000); search and rescue (+$3,700,000); technology utilization (+$8.000,000); and aeronautical research and technology (+$45,000,000).

Within the aeronautics program, the Committee directs that the additional funds be applied to the following eight program areas: aircraft energy efficiency; large composite primary aircraft structures, advanced turbo-prop (or prop fan); advanced rotocraft technology; commuter aircraft technology; advanced high speed transport aircraft technology; laminar flow control technology; and active controls technology. The Committee will consider a reprograming request on the numerical aerodynamic simulator after it has reviewed the alternative funding report being conducted by NASA at the direction of the Senate Authorizing Committee.

The Committee has deleted $5,000,000 from the request for long lead-time procurement on the fifth orbiter. The amount requested is so small relative to the requirements and the $25,000,000 contained in the January budget, that providing it would not significantly reduce the production time or costs of a fifth orbiter.

The Committee has also included $1,700,000 for the Mid-Level Facility on Mauna Kea, Hawaii. In the future the Committee does not expect NASA to make any commitments without notifying the authorization and appropriation committees.

The Committee has also deleted a House provision that placed caps on nine NASA programs. This provision is inconsistent with section 413 inserted by the House, which limits reprogramings of all activities.

The Committee is concerned with the plight of the applications and space science programs within NASA. These programs are basic to the mission of NASA and have contributed substantially to the U.S. economy and scientific preeminence. The Committee considers NASA's civilian programs a national resource and urges the administration to propose commensurate budget levels for these activities.

CONSTRUCTION OF FACILITIES

1981 appropriation	$115,000,000
1982 budget estimate	104,800,000
House allowance	95,800,000
Committee recommendation	104,800,000

The Committee recommends an appropriation of $104,800,000 for facilities activities in fiscal year 1982. This amount is the same as the budget estimate and $9,000,000 more than the House allowance.

PROGRAM DESCRIPTION

The construction of facilities appropriation recommended by the Committee provides for contractual services for repair, rehabilitation, and modification of existing facilities; the construction of new facilities; the acquisition of related facility equipment; the design of facilities projects; and, advance planning related to future facilities needs.

COMMITTEE RECOMMENDATION

The Committee has provided the full budget request for the construction of facilities. A comparison of the changes from the administration's request follows:

Activity	Administration's request	House recommendation	Senate recommendation
Construction of facilities	$104,800,000	$95,800,000	$104,800,000
Space flight operations facility-Jet Propulsion Laboratory	9,300,000	1,300,000	9,300,000
Minor construction	3,000,000	2,000,000	3,000,000

The Committee has restored $8,000,000 of the $9,300,000 requested for construction in the space flight operations facility at the Jet Propulsion Laboratory. The deletion of these funds would cause, at least, a 1-year delay in completing critical safety and fire protection modifications as well as delaying essential building improvements that have been scheduled in fiscal year 1982. The timing of this project is directly related to a slow period in deep space activities and any delay may cause conflict with future mission activities.

The Committee has also restored $1,000,000 for NASA's minor construction budget. The total budget request for such activities is only $3,000,000 and a cut of the magnitude proposed by the House could severely jeopardize essential NASA programs and activities.

RESEARCH AND PROGRAM MANAGEMENT

1981 appropriation	$1,071,400,000
1982 budget estimate	1,114,300,000
House allowance	1,100,000,000
Committee recommendation	1,114,300,000

The Committee recommends an appropriation of $1,114,300,000 in fiscal year 1982 for research and program management. This amount is the same as the budget estimate and $14,300,000 more than the House allowance.

PROGRAM DESCRIPTION

The research and program management appropriation supports the performance and management of research, technology, and test activities at NASA installations, and the planning, management, and support of contractor research and development tasks necessary to meet the Nation's objectives in aeronautical and space research. Specifically, this appropriation provides the technical and management capability of the civil service staff needed to conduct the full range of programs for which NASA is responsible; maintains facilities and laboratories in a state of operational capability and manages their use in support of research and development programs; and provides technical and administrative support for the research and development programs at NASA.

COMMITTEE RECOMMENDATION

The Committee has provided the full budget request for this account. Approximately 75 percent of the appropriation recommended by the Committee is needed to provide for salaries and related expenses of a civil service workforce of about 21,900 permanent civil service personnel at 10 installations and headquarters. This represents a reduction of 840 from the fiscal year 1981 appropriation.

The Committee restored $14,300,000 cut by the House with the understanding that any further reduction in personnel and related costs in fiscal year 1982 will mean that the civil service staff-years for which NASA can pay will be reduced and an already marginal staffing plan will be further impacted. NASA estimates that $14,300,000 in personnel and related costs is equivalent to about 400–500 civil service staff-years.

TITLE IV—GENERAL PROVISIONS

The Committee concurs with the general provisions that apply to the Department and agencies funded through this legislation in fiscal year 1982 as approved by the House with the following deletions:

SEC. 413. This new provision requires both House and Senate Committees to approve any reprograming. The Committee believes this provision is overly restrictive and could seriously hamper the agencies ability to manage their programs.

SEC. 409. This provision prohibits the transfer of funds from personnel compensation and benefits to any other object class without the prior approval of the Committees. Section 413 covers the activities that fall under this section and the Committee has the same objections to this provision as it does to section 413.

SEC. 414. This new provision prohibits overtime pay for employees over GS–9 paid through this act. The Committee believes that this provision, if enacted, would cause legal, administrative, and morale problems.

In addition the following new provision was included by the Senate:

SEC. 415. This Senate provision prohibits the use of funds in this bill to pay for employee travel which involves the taking of annual leave while the employee is away from his/her official duty station.

COMPLIANCE WITH RULE XVI, PARAGRAPH 7

Rule XVI, paragraph 7 states:

"Every report on general appropriation bills filed by the Committee on Appropriations shall identify with particularly each recommended amendment which proposes an item of appropriation which is not made to carry out the provisions of an existing law, a treaty stipulation, or an act or resolution previously passed by the Senate during that session."

The amendments recommended by the Committee are included in existing acts or resolutions or are covered under acts or resolutions passed by the Senate during this session.

97TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
1st Session } { No. 97-222

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, 1982, AND FOR OTHER PURPOSES

SEPTEMBER 11, 1981.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 4034]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 4034) 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, 1982, 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 7, 12, 15, 21, 24, 26, 31, 32, 33, 34, 36, 48, 49, 50, 51, 52, 58, and 59.

That the House recede from its disagreement to the amendments of the Senate numbered 2, 6, 9, 17, 19, 20, 25, 30, 38, 44, 46, 47, 53, 54, and agree to the same.

Amendment numbered 1:

That the House recede from its disagreement to the amendment of the Senate numbered 1, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$916,233,800*; and the Senate agree to the same.

Amendment numbered 3:

That the House recede from its disagreement to the amendment of the Senate numbered 3, and agree to the same with an amondment, as follows:

In lieu of the sum proposed by said amendment insert *$17,939,370,000*; and the Senate agree to the same.

Amendment numbered 8:

That the House recede from its disagreement to the amendment of the Senate numbered 8, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$40,000,000,000*; and the Senate agree to the same.

Amendment numbered 10:

That the House recede from its disagreement to the amendment of the Senate numbered 10, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$68,250,000,000*; and the Senate agree to the same.

Amendment numbered 11:

That the House recede from its disagreement to the amendment of the Senate numbered 11, and agree to the same with an amendment, as follows:

Restore the matter stricken by said amendment, amended to read as follows:

SOLAR ENERGY AND ENERGY CONSERVATION BANK

ASSISTANCE FOR SOLAR AND CONSERVATION IMPROVEMENTS

For financial assistance and other expenses, not otherewise provided for, to carry out the provisions of the Solar Energy and Conservation Bank Act of 1980 (12 U.S.C. 3601), $25,000,000, to remain available until September 30, 1983.

And the Senate agree to the same.

Amendment numbered 14:

That the House recede from its disagreement to the amendment of the Senate numbered 14, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$225,000,000*; and the Senate agree to the same.

Amendment numbered 16:

That the House recede from its disagreement to the amendment of the Senate numbered 16, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$23,000,000*; and the Senate agree to the same.

Amendment numbered 18:

That the House recede from its disagreement to the amendment of the Senate numbered 18, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$181,250,700*; and the Senate agree to the same.

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 *$4,973,100,000*; and the Senate agree to the same.

Amendment numbered 29:

Amendment No. 56: Changes section number to 414, instead of 416 as proposed by the House and 413 as proposed by the Senate.

Amendment No. 57: Changes section number to 415, instead of 417 as proposed by the House and 414 as proposed by the Senate.

Amendment No. 58: Deletes provision proposed by the Senate which would prohibit the use of funds to pay for employee travel involving the taking of annual leave while away from the official duty station.

The conferees are deeply concerned about continuing travel abuses. However, the Senate provision has been deleted because this issue can more properly be addressed through agency regulations. Therefore, the Committee of Conference directs the Department and agencies covered by this Act to continue in effect or to reinstitute regulations promulgated pursuant to a directive contained in the Joint Explanatory Statement of the Conferees set forth in House Report 96-409. The Committee of Conference further directs that the Department and each agency submit quarterly reports to the Appropriations Committees detailing waivers of annual leave restrictions based on economy fares. Each report should include a description of the reason for each trip, as well as the number of days spent in annual leave status and on official business. The conferees are particularly concerned about continuing problems within the Environmental Protection Agency and direct that agency to make a more aggressive effort to avoid improprieties in the use of annual leave in conjunction with official travel.

Amendment No. 59: Deletes provision proposed by the Senate which would prohibit the use of funds to assist beyond 30 days any unoccupied Section 8 housing unit. The conferees urge the Department to determine if savings are possible from more vigorous enforcement of existing legal authorities and regulations regarding assistance payments for vacant units. In addition, the Department is also urged to determine whether future contracts should include 30 day rather than 60 day limitations.

CONFERENCE TOTAL—WITH COMPARISONS

The total new budget (obligational) authority for the fiscal year 1982 recommended by the Committee of Conference, with comparisons to the fiscal year 1981 amount, the 1982 budget estimates, and the House and Senate bills for 1982 follow:

New budget (obligational) authority, fiscal year 1981	$69,578,917,253
Budget estimates of new (obligational) authority, fiscal year 1982 [1]	63,248,452,500
House bill, fiscal year 1982	62,599,958,500
Senate bill, fiscal year 1982	60,506,342,200
Conference agreement, fiscal year 1982	60,689,970,200
Conference agreement compared with:	
New budget (obligational) authority, fiscal year 1981	−8,888,947,053
Budget estimates of new (obligational) authority, fiscal year 1982	2,558,482,300
House bill, fiscal year 1982	−1,909,988,300
Senate bill, fiscal year 1982	+183,628,000

[1] Includes $125,658,000 of budget estimates not considered by the House.

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BILL GREEN,
LAWRENCE COUGHLIN,
C. W. BILL YOUNG,
SILVIO O. CONTE,
Managers on the Part of the House.

JAKE GARN,
LOWELL P. WEICKER,
PAUL LAXALT,
HARRISON SCHMITT,
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ARLEN SPECTER,
MARK O. HATFIELD,
WALTER D. HUDDLESTON,
JOHN C. STENNIS,
WILLIAM PROXMIRE,
PATRICK J. LEAHY,
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 amendments of the Senate to the bill (H.R. 4034) 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, 1982, 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:

National Aeronautics and Space Administration

Amendment No. 26: Restores language proposed by the House and stricken by the Senate limiting certain programs to the budget request without the approval of the Committees on Appropriations.

Amendment No. 27: Appropriates $4,973,100,000 for research and development, instead of $4,938,100,000 as proposed by the House and $4,994,500,000 as proposed by the Senate.

The conferees agree to add $70,000,000 above the request to be applied only for solar electric propulsion system, international solar polar mission, shuttle/spacelab payload development, upper atmospheric research satellites experiment, technology transfer, materials processing, search and rescue, technology utilization, aeronautical research and technology, and mid-level facility. In reaching this agreement, the conferees direct that additional funding be applied to each of these areas in such a manner and in such amounts as to bring about a meaningful programmatic enhancement of each of these programs.

Amendment No. 28: 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 providing that none of the funds shall be used to support the definition and development of techniques to analyze extraterrestrial radio signals for patterns that may be generated by intelligent sources.

Amendment No. 29: Appropriates $99,800,000 for construction of facilities, instead of $95,800,000 as proposed by the House and $104,800,000 as proposed by the Senate. The conferees agree that NASA should apply the reduction of $5,000,000 at the discretion of the agency.

Amendment No. 30: Appropriates $1,114,300,000 for research and program management as proposed by the Senate, instead of $1,100,000,000 as proposed by the House.

TITLE IV—GENERAL PROVISIONS

Amendment No. 49: Restores language proposed by the House and stricken by the Senate which prohibits the use of personnel compensation and benefits funds for other purposes without the approval of the Committees on Appropriations.

Amendment No. 50: Restores section number proposed by the House and modified by the Senate.

Amendment No. 51: Restores section number proposed by the House and modified by the Senate.

Amendment No. 52: Restores section number proposed by the House and modified by the Senate.

Amendment No. 53: Deletes language proposed by the House limiting funds to amounts set forth in the budget estimates. The Committee of Conference continues to be concerned that procedures be developed which would establish guidelines for the reprogramming of funds from activities for which moneys were requested in the budget documents. As such, the conferees restate by reference the specific procedures concerning reprogrammings for the National Aeronautics and Space Administration as set forth in the 1981 Senate Appropriations report. In addition, the Committee expects that all agencies will strictly adhere to the limitation of $250,000 or 10 percent, whichever is less, on reprogrammings between programs or activities. That requirement is also contained in the Senate report. For purposes of definition, this limitation shall apply to all line items carried in the budget justifications for the agencies covered by the HUD-Independent Agencies Appropriation Bill. The conferees also direct that no new activity, program or project not specifically requested in the budget may be funded without the approval of the Committees on Appropriations. The Committee views the monitoring of reprogrammings integral to the appropriations process and directs that each agency covered in this bill shall report on the implementation of the above outlined procedures by December 31, 1981.

Amendment No. 54: Deletes provision proposed by the House and stricken by the Senate which would have prohibited overtime payments for employees above GS-9.

Amendment No. 55: Changes section number to 413, instead of 415 as proposed by the House and 412 as proposed by the Senate.

That the House recede from its disagreement to the amendment of the Senate numbered 29, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$99,800,000*; and the Senate agree to the same.

Amendment numbered 37:

That the House recede from its disagreement to the amendment of the Senate numbered 37, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$1,040,000,000*; and the Senate agree to the same.

Amendment numbered 39:

That the House recede from its disagreement to the amendment of the Senate numbered 39, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$27,450,000*; and the Senate agree to the same.

Amendment numbered 40:

That the House recede from its disagreement to the amendment of the Senate numbered 40, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$14,450,000*; and the Senate agree to the same.

Amendment numbered 41:

That the House recede from its disagreement to the amendment of the Senate numbered 41, and agree to the same with an amendment, as follows:

Restore the matter stricken by said amendment, amended to read as follows:

INVESTMENT IN NATIONAL CONSUMER COOPERATIVE BANK

For the purchase of class A stock issued by the National Consumer Cooperative Bank as authorized by section 104 of the National Consumer Cooperative Bank Act (12 U.S.C. 3014), $47,000,000, to remain available until September 30, 1983.

And the Senate agree to the same.

Amendment numbered 42:

That the House recede from its disagreement to the amendment of the Senate numbered 42, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$12,881,600,000*; and the Senate agree to the same.

Amendment numbered 43:

That the House recede from its disagreement to the amendment of the Senate numbered 43, and agree to the same with an amendment, as follows: Restore the matter stricken by said amendment, amended to read as follows: *: Provided, That this appropriation is hereby reduced by $19,700,000 through the elimination of payments for flight and correspondence training benefits, except for those persons enrolled in flight training on August 31, 1981, and correspondence training on September 30, 1981, and who remain continuously thereafter so enrolled and meet the applicable requirements of eligibility.* and the Senate agree to the same.

Amendment numbered 45:

That the House recede from its disagreement to the amendment of the Senate numbered 45, and agree to the same with an amendment, as follows:

In lieu of the sum proposed by said amendment insert *$150,699,000*; and the Senate agree to the same.

Amendment numbered 55:

That the House recede from its disagreement to the amendment of the Senate numbered 55, and agree to the same with an amendment, as follows:

In lieu of the matter stricken and inserted by said amendment, insert the following: *413*; and the Senate agree to the same.

Amendment numbered 56:

That the House recede from its disagreement to the amendment of the Senate numbered 56, and agree to the same with an amendment, as follows:

In lieu of the matter stricken and inserted by said amendment, insert the following: *414*; and the Senate agree to the same.

Amendment numbered 57:

That the House recede from its disagreement to the amendment of the Senate numbered 45, and agree to the same with an amendment, as follows:

In lieu of the matter stricken and inserted by said amendment, insert the following: *415*; and the Senate agree to the same.

The committee of conference report in disagreement amendments numbered 4, 5, 13, 22, 23, 28, and 35.

EDWARD P. BOLAND,
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JOHN C. STENNIS,
WILLIAM PROXMIRE,
PATRICK J. LEAHY,
Managers on the Part of the Senate.

Public Law 97-101
97th 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, 1982, and for other purposes.

Dec. 23, 1981
[H.R. 4034]

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, 1982, and for other purposes, namely:

Department of Housing and Urban Development—Independent Agencies Appropriation Act, 1982.

TITLE II

INDEPENDENT AGENCIES

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

For necessary expenses, not otherwise provided for, including research, development, operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law; 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 (1) $75,000,000 for Space Transportation Systems Upper Stages, (2) $40,000,000 for Space Transportation Systems Operations—Upper Stages, (3) $119,500,000 for the Space Telescope, (4) $10,000,000 for Venus Orbiting Imaging Radar, (5) $8,000,000 for the Gamma Ray Observatory, (6) $108,000,000 for Project Galileo, (7) $83,900,000 for Landsat D, (8) $2,194,000,000 for the Space Shuttle, and (9) $110,700,000 for Spacelab, without the approval of the Committees on Appropriations, $4,973,100,000, to remain available until September 30, 1983: *Provided,* That none of these funds shall be used to support the definition and development of techniques to analyze extraterrestrial radio signals for patterns that may be generated by intelligent sources.

CONSTRUCTION OF FACILITIES

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, $99,800,000, to remain available until September 30, 1984: *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; purchase (for replacement only, of one aircraft, for which partial payment may be made by exchange of at least one existing administrative aircraft and such other existing aircraft as may be considered appropriate), hire, maintenance and operation of administrative aircraft; purchase (not to exceed twenty-four 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; $1,114,300,000: *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.

TITLE IV

GENERAL PROVISIONS

Travel expenses

SEC. 401. Where appropriations in titles I and II of this Act are expendable for travel expenses 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; to travel performed in connection with major disasters or emergencies declared or determined by the President under the provisions of the Disaster Relief Act of 1974; or to payments to interagency motor pools where separately set forth in the budget schedules.

42 USC 5121 note

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

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

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.

Prohibition of certain government transportation.

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.

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 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.

5 USC 5332 note.

SEC. 409. No part of any appropriation contained in this Act for personnel compensation and benefits shall be available for other object classifications set forth in the budget estimates submitted for the appropriations without the approval of the Committees on Appropriations.

SEC. 410. None of the funds in this Act shall be used to pay the expenses of, or otherwise compensate, non-Federal parties intervening in regulatory or adjudicatory proceedings. Nothing herein affects the authority of the Consumer Product Safety Commission pursuant to section 7 of the Consumer Product Safety Act (15 U.S.C. 2056 et seq.).

Consulting service contracts. Public record availability.

SEC. 411. Except as otherwise provided under existing law or under an existing Executive order issued pursuant to an existing law, the obligation or expenditure of any appropriation under this Act for contracts for any consulting service shall be limited to contracts which are (1) a matter of public record and available for public inspection, and (2) thereafter included in a publicly available list of all contracts entered into within twenty-four months prior to the date on which the list is made available to the public and of all contracts on which performance has not been completed by such date. The list required by the preceding sentence shall be updated quarterly and shall include a narrative description of the work to be performed under each such contract.

SEC. 412. Except as otherwise provided by law, no part of any appropriation contained in this Act shall be obligated or expended by any executive agency, as referred to in the Office of Federal Procurement Policy Act (41 U.S.C. 401 et seq.) for a contract for services unless such executive agency (1) has awarded and entered into such contract in full compliance with such Act and the regulations promulgated thereunder and (2) requires any report prepared pursuant to such contract, including plans, evaluations, studies, analyses and manuals, and any report prepared by the agency which is substantially derived from or substantially includes any report prepared pursuant to such contract, to contain information concerning (A) the contract pursuant to which the report was prepared and (B) the contractor who prepared the report pursuant to such contract.

SEC. 413. No part of any appropriation contained in this Act shall be available to implement, administer, or enforce any regulation which has been disapproved pursuant to a resolution of disapproval duly adopted in accordance with the applicable law of the United States.

SEC. 414. Except as otherwise provided in section 406, none of the funds provided in this Act to any department or agency shall be obligated or expended to provide a personal cook, chauffeur, or other personal servants to any officer or employee of such department or agency.

SEC. 415. None of the funds provided in this Act to any department or agency shall be obligated or expended to procure passenger automobiles as defined in 15 U.S.C. 2001 with an EPA estimated miles per gallon average of less than 22 miles per gallon.

TITLE V

SEC. 501. Notwithstanding any other provision of this Act—

(1) The amount of the increase in contract authority under the heading "HOUSING PROGRAMS, ANNUAL CONTRIBUTIONS FOR ASSISTED HOUSING", shall be $897,177,848, and the amount of the increase in budget authority under such heading shall be $17,373,528,040.

(2) The amount appropriated under the heading "HOUSING PROGRAMS, HOUSING COUNSELING ASSISTANCE", shall be $3,520,000.

(3) The amount appropriated under the heading "SOLAR ENERGY AND ENERGY CONSERVATION BANK, ASSISTANCE FOR SOLAR AND CONSERVATION IMPROVEMENTS", shall be $23,000,000.

(4) The amount appropriated under the heading "COMMUNITY PLANNING AND DEVELOPMENT, COMMUNITY DEVELOPMENT GRANTS", shall be $3,600,000,000.

(5) The amount appropriated under the heading "COMMUNITY PLANNING AND DEVELOPMENT, URBAN DEVELOPMENT ACTION GRANTS", shall be $458,000,000.

(6) The amount appropriated under the heading "POLICY DEVELOPMENT AND RESEARCH, RESEARCH AND TECHNOLOGY", shall be $20,000,000.

(7) The amount appropriated under the heading "FAIR HOUSING AND EQUAL OPPORTUNITY, FAIR HOUSING ASSISTANCE", shall be $5,016,000.

(8) The amount appropriated under the heading "MANAGEMENT AND ADMINISTRATION, WORKING CAPITAL FUND", shall be $528,000.

(9) The amount appropriated under the heading "DEPARTMENT OF DEFENSE—CIVIL, CEMETERIAL EXPENSES, ARMY, SALARIES AND EXPENSES", shall be $4,476,000.

(10) The amount appropriated under the heading "ENVIRONMENTAL PROTECTION AGENCY, SALARIES AND EXPENSES", shall be $562,837,000.

(11) The amount appropriated under the heading "ENVIRONMENTAL PROTECTION AGENCY, RESEARCH AND DEVELOPMENT", shall be $167,759,000.

(12) The amount appropriated under the heading "ENVIRONMENTAL PROTECTION AGENCY, ABATEMENT, CONTROL AND COMPLIANCE", shall be $395,000,000.

(13) The amount appropriated under the heading "ENVIRONMENTAL PROTECTION AGENCY, BUILDINGS AND FACILITIES", shall be $3,621,000.

(14) The amount appropriated under the heading "EXECUTIVE OFFICE OF THE PRESIDENT, COUNCIL ON ENVIRONMENTAL QUALITY AND OFFICE OF ENVIRONMENTAL QUALITY", shall be $919,000.

(15) The amount appropriated under the heading "EXECUTIVE OFFICE OF THE PRESIDENT, OFFICE OF SCIENCE AND TECHNOLOGY POLICY", shall be $1,578,000.

(16) The amount appropriated under the heading "FEDERAL EMERGENCY MANAGEMENT AGENCY, FUNDS APPROPRIATED TO THE PRESIDENT, DISASTER RELIEF", shall be $301,694,000.

(17) The amount appropriated under the heading "FEDERAL EMERGENCY MANAGEMENT AGENCY, SALARIES AND EXPENSES", shall be $93,879,000.

(18) The amount appropriated under the heading "FEDERAL EMERGENCY MANAGEMENT AGENCY, STATE AND LOCAL ASSISTANCE", shall be $121,829,000.

(19) The amount appropriated under the heading "FEDERAL EMERGENCY MANAGEMENT AGENCY, EMERGENCY PLANNING AND ASSISTANCE", shall be $67,906,000.

(20) There are appropriated, out of any money in the Treasury not otherwise appropriated, for the repayment of notes dated April 17, 1979, and September 28, 1979, issued by the Director of the Federal Emergency Management Agency to the Secretary of the Treasury pursuant to section 15(e) of the Federal Flood Insurance Act of 1956 (42 U.S.C 2414(e)), $328,240,000.

(21) The amount appropriated under the heading "DEPARTMENT OF HEALTH AND HUMAN SERVICES, OFFICE OF CONSUMER AFFAIRS", shall be $1,760,000.

(22) The amount appropriated under the heading "NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, RESEARCH AND DEVELOPMENT", shall be $4,973,100,000, of which not to exceed $3,104,900,000 shall be available for the Space Shuttle including space flight operations: *Provided*, That the limitations subject to the approval of the Committees on Appropriations contained under this heading shall not be affected by this subsection.

(23) The amount appropriated under the heading "NATIONAL SCIENCE FOUNDATION, RESEARCH AND RELATED ACTIVITIES", shall be $1,010,000,000.

(24) The amount appropriated under the heading "NATIONAL SCIENCE FOUNDATION, SCIENCE EDUCATION ACTIVITIES", shall be $22,000,000.

(25) The amount appropriated under the heading "NATIONAL SCIENCE FOUNDATION, SCIENTIFIC ACTIVITIES OVERSEAS (SPECIAL FOREIGN CURRENCY PROGRAM)", shall be $3,080,000.

(26) The amount appropriated under the heading "SELECTIVE SERVICE SYSTEM, SALARIES AND EXPENSES", shall be $18,633,000.

(27) The amount appropriated under the heading "DEPARTMENT OF THE TREASURY, OFFICE OF REVENUE SHARING, SALARIES AND EXPENSES", shall be $6,148,000.

(28) The amount appropriated under the heading "DEPARTMENT OF THE TREASURY, NEW YORK CITY LOAN GUARANTEE PROGRAM", shall be $822,000.

(29) The amount appropriated under the heading "VETERANS ADMINISTRATION, COMPENSATION AND PENSIONS", shall be $13,824,000,000.

(30) The amount appropriated under the heading "VETERANS ADMINISTRATION, READJUSTMENT BENEFITS", shall be $1,938,800,000.

(31) The amount appropriated under the heading "VETERANS ADMINISTRATION, MEDICAL AND PROSTHETIC RESEARCH", shall be $128,215,000.

(32) The amount appropriated under the heading "VETERANS ADMINISTRATION, MEDICAL ADMINISTRATION AND MISCELLANEOUS OPERATING EXPENSES", shall be $57,700,000.

(33) The amount appropriated under the heading "VETERANS ADMINISTRATION, CONSTRUCTION, MAJOR PROJECTS", shall be $378,338,000.

(34) The amount appropriated under the heading "VETERANS ADMINISTRATION, CONSTRUCTION, MINOR PROJECTS", shall be $102,942,000, of which not to exceed $30,018,000 shall be available for the Office of Construction.

(35) The amount appropriated under the heading "VETERANS ADMINISTRATION, GRANTS FOR CONSTRUCTION OF STATE EXTENDED CARE FACILITIES", shall be $15,840,000.

(36) The amount appropriated under the heading "DEPARTMENT OF THE TREASURY, INVESTMENT IN NATIONAL CONSUMER COOPERATIVE BANK", shall be $43,000,000: *Provided*, That the final Government equity redemption date for the National Consumer Cooperative Bank shall occur on December 31, 1981.

(37) During fiscal year 1982, gross obligations of not to exceed $75,960,000 are authorized for payments under section 230(a) of the National Housing Act, as amended, from the insurance fund chargeable for benefits on the mortgage covering the property to which the payments made relate, and payments in connection with such obligations are hereby approved. 12 USC 1715u.

(38) The amount appropriated under the heading "HOUSING PROGRAMS, PAYMENTS FOR OPERATION OF LOW-INCOME HOUSING PROJECTS—FISCAL YEAR 1981", shall remain available until September 30, 1982: *Provided*, That any part of the foregoing amount which has not been obligated before the forty-fifth calendar day following the enactment of this joint resolution, shall be deemed obligated notwithstanding the provisions of 31 U.S.C. 200(a).

(39) The Congress also disapproves the deferral under the heading "VETERANS ADMINISTRATION, (DISAPPROVAL OF DEFERRAL)", of the Washington, D.C., and Long Beach, Calif., projects as contained in deferral notice D82-140.

(40) Notwithstanding any other provision of this Act, including any other provision of this title, any agency may, before December 31, 1981, transfer to salaries and expenses from other sources made available to it by this Act, such amounts as may be required if the aggregate amount available for salaries and expenses, after such transfer, does not exceed the amount contained for such purposes in this Act before the application of the changes contained in title V: *Provided*, That such transfers shall be subject to the approval of the Committees on Appropriations: *Provided further*, That in the Department of Housing and Urban Development not to exceed (1) $34,000,000 shall be available for data processing services, (2) 12 full-time permanent positions and 16 staff years shall be available for the Immediate Office of the Assistant Secretary for Administration, and (3) 26 full-time permanent positions and 27 staff years shall be available for the Office of the Assistant Secretary for Legislation and Congressional Relations: *Provided further*, That in the National Aeronautics and Space Administration not to exceed (1) 150 full-time permanent positions shall be available for the Office of the Comptroller and (2) 120 full-time permanent positions shall be available for the Office of External Relations: *Provided further*, That in the Veterans Administration not to exceed (1) $1,500,000 shall be available for the Office of Planning and Program Evaluation and (2) 649 staff years shall be available for the Supply Service.

(41) Notwithstanding any other provision of this Act, section 140 of H.J. Res. 357, as passed by the Senate on November 20, 1981, shall apply to programs, projects, or activities contained in this Act: *Provided*, That section 140 shall remain in effect for the programs, projects, or activities in this Act through September 30, 1982.

This Act may be cited as the "Department of Housing and Urban Development—Independent Agencies Appropriation Act, 1982". Short title

Approved December 23, 1981.

LEGISLATIVE HISTORY—H.R. 4034:

HOUSE REPORTS: No. 97-162 (Comm. on Appropriations) and No. 97-222 (Comm. of Conference).
SENATE REPORT No. 97-163 (Comm. on Appropriations).
CONGRESSIONAL RECORD, Vol. 127 (1981):
July 10, 17, considered and passed House.
July 30, considered and passed Senate, amended.
Sept. 15, House agreed to conference report; concurred in certain Senate amendments.
Nov. 21, Senate agreed to conference report; concurred in House amendments with an amendment.
Dec. 10, House concurred in Senate amendment.

97TH CONGRESS, 2d Session | HOUSE OF REPRESENTATIVES | REPORT No. 97-747

MAKING SUPPLEMENTAL APPROPRIATIONS FOR FISCAL YEAR ENDING SEPTEMBER 30, 1982, AND FOR OTHER PURPOSES

AUGUST 13, 1982.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 6863]

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill (H.R. 6863) making supplemental appropriations for the fiscal year ending September 30, 1982, and for other purposes, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Amendment No. 166: 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 providing that $50,000,000 of the $80,000,000 appropriated for research and program management shall remain available until September 30, 1983.

97TH CONGRESS, 2d Session | HOUSE OF REPRESENTATIVES | REPORT No. 97-632

MAKING URGENT SUPPLEMENTAL APPROPRIATIONS FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1982, AND FOR OTHER PURPOSES

JULY 14, 1982.—Ordered to be printed

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

CONFERENCE REPORT

[To accompany H.R. 6685]

The committee of conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 6685) making urgent supplemental appropriations for the fiscal year ending September 30, 1982, and for other purposes, having met, after full and free conference, have been unable to agree.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RESEARCH AND DEVELOPMENT

Notwithstanding any other provision of this or any other Act, of the funds appropriated under the heading, "National Aeronautics and Space Administration, Research and development" in Public Law 97-101, not less than the amounts hereinafter set forth shall be made available for the purposes specified: $31,200,000 for expendable launch vehicles; $323,500,000 for physics and astronomy (including $40,000,000 for Shuttle-Spacelab payloads); $205,000,000 for planetary exploration (including $1,700,000 for the mid-level facility in Hawaii); $39,500,000 for life sciences; $328,200,000 for space applications (including $2,300,000 for the search and rescue program, $5,000,000 for technology transfer, $6,000,000 for upper atmosphere research satellite experiments, $16,200,000 for Shuttle-Spacelab payloads, and $15,400,000 for a 30/20 gigahertz test satellite); $8,000,000 for technology utilization; $264,800,000 for aeronautical research and technology; $111,000,000 for space research and technology; and $402,100,000 for tracking and data acquisition: Provided, That of the funds available for the Space Shuttle, including space flight operations, not less than $80,000,000 shall be made available for design, development and procurement of liquid hydro-

gen-liquid oxygen (Centaur) upper stages for use in launching the Galileo and Solar Polar spacecraft in 1986: Provided further, That no funds may be obligated for other upper stages, including kick stages, for the Galileo and Solar Polar spacecraft after the enactment of this Act except for work performed prior to the effective date of this Act, together with liability for termination: Provided further, That no funds appropriated in this or any other Act may be obligated for a Solar Maximum repair/retrieval mission until the Secretary of the Air Force enters into an agreement with the Administrator to reimburse the National Aeronautics and Space Administration 50 per centum of the costs of such mission (exclusive of the costs attributable solely to equipment for the Solar Maximum spacecraft and to equipment capable of reuse): Provided further, That upon request by the Administrator of the National Aeronautics and Space Administration and approval by the Committees on Appropriations not to exceed $50,000,000 from the unobligated balances of funds appropriated under the heading "National Aeronautics and Space Administration, Construction of facilities" or "National Aeronautics and Space Administration, Research and program management" in Public Law 97-101 and Public Law 96-526 shall be available for the Space Shuttle, including space flight operations: Provided further, That the Administrator makes sufficient funds available to assure that a second Space Shuttle launch pad at the Kennedy Space Center, Florida, is operational by January 1, 1986.

ADMINISTRATIVE PROVISION

Limitations in section 501(40) of title V of the Department of Housing and Urban Development-Independent Agencies Appropriation Act, 1982, are amended as follows: The limitations on the Department of Housing and Urban Development's Office of the Assistant Secretary for Legislation and Congressional Relations are increased from 26 full-time permanent positions and 27 staff years to 31 full-time permanent positions and 33.5 staff years, the limitation on the National Aeronautics and Space Administration's Office of the Comptroller is increased from 150 full-time permanent positions to 161 full-time permanent positions, the limitation on the National Aeronautics and Space Administration's Office of External Relations is increased from 120 full-time permanent positions to 125 full-time permanent positions, excluding those positions allocated for Technology Utilization activities, and the limitation on the Veterans Administration's Office of Planning and Program Evaluation is increased from $1,500,000 to $2,300,000.

CHRONOLOGY OF EVENTS
AUTHORIZATION BILL
HOUSE (H.R. 1257)

SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND COMMUNICATIONS

9/9/80	Dr. Walter B. Olstad
2/10/81	Dr. Walter B. Olstad, C. Robert Nysmith
3/19/81	Dr. Walter B. Olstad, C. Robert Nysmith

SUBCOMMITTEE ON SPACE SCIENCE AND APPLICATIONS

9/16/80	John F. Yardley, Dr. Stanley I. Weiss
9/17/80	Dr. Anthony J. Calio, Robert E. Smylie
9/18/80	Dr. Andrew J. Stofan, Dr. Walter B. Olstad
1/28/81	Dr. Alan M. Lovelace, Dr. Anthony J. Calio, Charles T. Newman
3/10/81	Dr. Alan M. Lovelace, Robert E. Smylie, Ronald Dapice
3/11/81	Michael Weeks, David R. Braunstein, MacFarland Steel, Dr. Stanley I. Weiss Joseph Kratovil
3/12/81	Dr. Walter B. Olstad, Dr. Daid Morrison
3/17/81	Samuel W. Keller, Kathleen Charles, Dr. Lawrence R. Greenwood
3/18/81	Charles T. Newman, Billie J. McGarvey, Edwin C. Kilgore, S. Neil Hosenball
3/24/81	Dr. Alan M. Lovelace, Charles T. Newman, Dr. Anthony J. Calio

FIELD HEARINGS

2/20/81	John F. Kennedy Space Center - Richard Smith, Dr. Anthony J. Calio, Mr. Beddingfield
2/23/81	Lewis Research Center - John F. McCarthy, Jr., Dr. Klineberg, Dr. Himmel, Merv Ault, Henry Slone, Dr. Olson, Larry Ross, Ed Richley
2/27/81	Johnson Space Center - Christopher C. Craft, Jr., Mr. Robert Thompson, Dr. Glynn Lonney, Dr. Maxime Faget, Mr. George Abbey, Mr. Joseph Loftus
3/2/81	Marshall Space Flight Center - Dr. W. R. Lucas, Jack Lee, John Potate, Woody Bethay, Susan McGuire Smith, Jerry Allen, Joe Jones, Bob Lindstrom, Jack Swearingen, Fred Speer, Lowell Zoller, John Thomas, O. C. Jean, Bob Marshall, Jim Murphy, Jim Kingsbury
3/20/81	TRW Inc.
3/20/81	Rockwell International
3/21/81	Jet Propulsion Laboratory
3/23/81	Lockheed Missiles and Space Co. Inc.

CHRONOLOGY OF EVENTS
AUTHORIZATION BILL
SENATE (S. 1098)

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

3/10/81	Dr. Alan M. Lovelace, Dr. Anthony J. Calio, Dr. Walter B. Olstad
3/19/81	Dr. Alan M. Lovelace, Charles T. Newman, Dr. Anthony J. Calio, Dr. Walter B. Olstad, Robert Nysmith, L. Michael Weeks, David Braunstein, McFarland Steel, Frank Van Rensselaer, Edward P. Andrews, Ivan Bekey, Dr. Stanley Weiss, Joseph Kratovil
3/25/81	Dr. Alan M. Lovelace, Dr. Anthony J. Calio, Charles T. Newman, Andrew J. Stofan, Dr. Jeffery Rosendahl, Dr. David Morrison, Paul Anderson
3/31/81	Kenneth S. Pederson, Richard Barnes
4/7/81	Samuel W. Keller, Kathleen Charles, L. Ronald Greenwood, Gen. Billie J. McGarvey, Richard Erwin, Robert E. Smylie, Norman Pozinsky, Ronald R. Dapice
4/27/81	Dr. Anthony J. Calio, Dr. Ronald Hearth

CONFERENCE COMMITTEE ACTION

11/21/81	Conference Committee Report No. 97-31
11/23/81	Senate Approved Conference Report
12/8/81	House Approved Conference Report
12/21/81	President Approved P.L. 97-96

CHRONOLOGY OF EVENTS
APPROPRIATION BILL

HOUSE (H.R. 4034)

5/6/81 Dr. Alan M.Lovelace, Dr. Anthony J. Calio, Charles T. Newman, Stanley I. Weiss, Andrew J. Stofan, Billie J. McGarvey, John F. Yardley, Dr. Walter B. Olstad, Robert E. Smylie, Frank E. Penaranda, Bryan Hyland, Terence Finn, Robert F. Allnutt, L. Michael Weeks

6/25/81 House Committees Report No. 97-162

7/17/81 House Approved

CONFERENCE COMMITTEE ACTION

9/11/81 Conference Committee Report No. 97-222

9/15/81 House Approved Conference Report

11/21/81 Senate Approved Conference Report with an Amendment

12/10/81 House Concurred in Senate Amendment

12/23/81 President Approved P.L. 97-101

SENATE (H.R. 4034)

5/12/81 Dr. Alan M. Lovelace, Robert E. Smylie, Sam Keller, Andrew J. Stofan, Charles T. Newman, Dr. Anthony J. Calio, L. Michael Weeks, Stanley I. Weiss, C. Robert Nysmith

7/23/81 Senate Committee Report No. 97-163

7/30/81 Senate Approved with Amendment

CHRONOLOGY OF EVENTS
APPROPRIATION BILL

URGENT SUPPLEMENTAL (H.R. 6685)

Redistributes Shuttle funds to other areas. Authorizes use of up to $50M of CoF or R&PM funds from P.L. 97-101 to fund Shuttle deficiency upon approval of appropriations committees.

No overall increase in funds

7/14/82 Conference Committee Report No. 97-632

7/15/82 House approved Conference Report

7/15/82 Senate approved Conference Report

7/18/82 President approved P.L. 97-216

GENERAL SUPPLEMENTAL

$80M supplemental appropriation for R&PM
$50M remain available through FY 83 to replace funds expected to be used for Shuttle

8/13/82 Conference Report No. 97-257

8/18/82 House approved Conference Report

8/20/82 Senate approved Conference Report

8/28/82 President vetoed bill

9/10/82 Veto overridden