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SPACE SHUTTLE TRAFFIC MODEL DEVELOPED FROM 1971 MISSION-MODEL

By Shuttle Utilization Planning Office
Program Development

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NASA

George C. Marshall Space Flight Center
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16. ABSTRACT

Traffic model data for the Space Shuttle using the 1971 NASA, DoD, and commercial mission models are presented along with descriptions and schedules for the NASA and commercial payloads used to develop the data.

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SUMMARY

Traffic model data for the Space Shuttle using the 1971 NASA, DoD, and commercial mission models are presented along with descriptions and schedules for NASA and commercial payloads. All Shuttle flights for calendar years 1979 through 1990 are included. This document is intended for NASA planning purposes only. The payload data in this document do not represent approved program information. The data were generated to help guide the development of the Space Transportation System (Space Shuttle and Tug) which will provide the United States a capability for economical space missions.

Low cost payloads which take advantage of the Space Shuttle's payload-oriented capabilities are assumed where cost effective. The low cost payload design effects and Shuttle assignments for DoD missions were provided by NASA and have not been approved by the Department of Defense. While the traffic model portion of this document is complete, the descriptive data for DoD payloads used to generate this model have been omitted.

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GLOSSARY

Agena (A)	high energy expendable upper stage using "storable" propellants
Appl.	applications
AU	astronomical unit (mean distance from sun to earth)
Best Mix	lowest overall cost combination of current design expendable, current design reusable, low cost expendable, and low cost reusable payloads
Broad.	broadcast
CDE	current design expendable (refers to payload type)
CDR	current design reusable (refers to payload type)
Centaur (C)	high energy expendable upper stage using cryogenic propellants
Comm.	communication
Coop.	cooperative
D	DoD (Department of Defense)
Dem.	demonstration
DoD	Department of Defense
Dom.	domestic
Eclip.	ecliptic plane
Educ.	education
Eq.	equatorial
ETR	launch site is Kennedy Space Center (KSC)
Exp.	experiment
Expend.	expendable
Expl.	explorer
Follow-On	extension of earlier applications satellites in the communications and navigation area
Grand Tour	multiple outer planet mission; Jupiter, Uranus, Neptune
Grav.	gravitational

GLOSSARY (Continued)

HEAO	High Energy Astronomy Observatory
High	refers to portion of magnetosphere
Incl.	inclination, angular distance from equator in degrees
Interf.	interferometer
K	kilo (1000)
Kick	refers to high energy upper stage
KSC	Kennedy Space Center
Land.	lander
LCE	low cost expendable (refers to payload type)
LCR	low cost reusable (refers to payload type)
L/D	length/diameter in feet
LEO	low earth orbit
Low	refers to portion of magnetosphere
LSO	Large Space Observatory
LST	Large Space Telescope
Map.	mapping
Met.	meteorological
Mfg.	manufacturing
Mid	refers to portion of magnetosphere
Mod.	module
NAS	code for NASA astronomy payloads
Nav.	navigation
NCN	code for communication and navigation payloads
NEO	code for earth observation payloads
New	indicates first flight of payload
Net.	network

GLOSSARY (Continued)

non-NASA	other than NASA and DoD
NPL	code for NASA planetary payloads
NSP	code for NASA physics payloads
NSS	code for NASA Space Station payloads
Obs.	observation
Observ.	observatory
Orb.	orbiting
Orbit	altitude in nautical miles/inclination in degrees (both apogee and perigee shown for elliptical orbits)
P/L	payload
Polar	refers to polar orbit (90-degree inclination)
Pr.	pair, two identical payloads at different locations required for a mission; e.g., payloads 10 (NAS-7) and 11 (NAS-8) are both required for this mission
Refurb.	refurbished (refers to payloads)
Rel.	relativity
Res.	resources
Retrieval	return of payload from earth orbit to earth surface
Return	return to earth surface
Revisit	rendezvous for maintenance and data retrieval with an orbiting payload
Sat.	satellite
Site	refers to launch site
Sortie	Sortie lab (including unpressurized payload pallet where applicable
S. S.	Space Station
Sta.	station
Stage	refers to high energy upper stage

GLOSSARY (Concluded)

Syn.	geosynchronous orbit (19,300 nautical miles) at a 30-degree inclination
Syn. Eq.	geosynchronous equatorial orbit (19,300 nautical miles 0-degree inclination)
Sys.	systems
Tech.	technology
Tiros	meteorological satellite
TOPS	Thermoelectric Outer Planet Spacecraft
TOS	Tiros Operational Satellite
Track.	tracking
Tug	reusable high energy upper stage
Viking	Mars soft lander
WTR	Western Test Range

SPACE SHUTTLE TRAFFIC MODEL DEVELOPED
FROM 1971 MISSION MODEL

INTRODUCTION

The evolution of a meaningful traffic model for the Space Shuttle necessarily includes the development of payloads which take advantage, both economically and scientifically, of the unique capabilities provided by the Space Shuttle. The data included in this document are derived from a "best mix" (based on lowest costs) of current design expendable, current design reusable, and low cost payloads. Current design reusable payloads are current design payloads with additional hardware, where appropriate, for recovery and reuse. Low cost payload assumptions include not only payload reusability but many additional cost-saving concepts such as relaxation of weight and volume constraints, optimization of reliability and lifetime, standardization of subsystems and components, and design for maintainability. These data are presented in tabular form in Tables 1 through 3. The Shuttle flight numbers in Table 3 do not represent a priority of flights or a sequence of flights for any given year.

The assumption used for Tug availability for this document is initial operational capability in 1985 with expendable stages used (in lieu of the Tug) prior to that. The WTR launch site was assumed to be available beginning in 1980 with the KSC launch site being used for all launches in 1979.

It was assumed that no payloads from mission models would be flown on Shuttle flights during 1978. However, this does not preclude the flying of austere experiments during this time frame.

TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL

Payload Program — Code No. / P/L Type / P/L Weight	Site / Orbit / L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Explorers – LEO															
1 (NAS-14) CDR 1083	KSC 270/28.5 5.0/6.0	Launch New	2		1	1		1					1		6
		Launch Refurb.				1	2			2	1	2	1		9
		Retrieval		2		2			2	2			2		10
Explorers – Syn. Eq.															
2 (NAS-14) CDR 1083	KSC Syn. Eq. 5.0/6.0	Launch New		2	1			1	2						6
		Launch Refurb.									1			2	3
		Retrieval							2		1		2	2	7
Magnetosphere – Low															
3 (NSP-1) LCR 4718	KSC/WTR 180/1800/28.5,90 13.0/12.0	Launch New KSC	1		1		1	1							4
		Launch New WTR	1	1		1			1						4
		Launch Refurb. KSC								1		1			2
		Launch Refurb. WTR									1			1	2
		Retrieval							1	1	1	1	1	1	6
Magnetosphere – Mid															
4 (NSP-2) LCR 2698	KSC/WTR 1,000/20,000/28.5,90 9.5/9.0	Launch New KSC	1		1		1	1							4
		Launch New WTR	1	1		1			1						4
		Launch Refurb. KSC								1		1			2
		Launch Refurb. WTR									1			1	2
		Retrieval							1	1	1	1	1	1	6
Magnetosphere – High															
5 (NSP-3) LCE 1200	KSC 1AU/Equip. 7.5/6.0	Launch New	1	1	1	1	1	1	1	1	1	1	1	1	12
		Launch Refurb.													
		Retrieval													
Orb. Solar Observ.															
6 (NAS-15) LCE 4270	KSC 350/28.5 15.5/10.0	Launch New		1											1
		Launch Refurb.													
		Retrieval													
Grav. Rel. Exp. – A, C, E															
7 (NSP-6) LCR 3743	WTR 300/90.0 12.0/10.0	Launch New						1							1
		Launch Refurb.												1	1
		Retrieval							1					1	2

Note: △ = Payloads launched on expendable launch vehicles.
 ○ = Denotes deployment and retrieval cannot be accomplished on same flight (i.e., must occur at different times).

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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program — Code No. P/L Type P/L Weight	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Grav. Rel. Exp. – B, D															
8 (NSP-7) LCE 1,140	KSC 1AU/Eclip. 8.0/6.0	Launch New			1										2
		Launch Refurb.									1				
		Retrieval													
Radio Interf. – Syn.															
9 (NAS-11) CDE 10,350	KSC 40,000/28.5 25.0/14.0	Launch New			1										1
		Launch Refurb.											1		
		Retrieval													
Solar Orbiter Pr. – Syn.															
10 (NAS-7) CDE 1,880	KSC Syn./30 12.0/10.0	Launch New						1							2
		Launch Refurb.													
		Retrieval													
Solar Orbiter Pr. – 1AU															
11 (NAS-8) CDE 2,520	KSC 1AU/Eclip. 12.0/10.0	Launch New						1					1		2
		Launch Refurb.													
		Retrieval													
Optical Interf. Pr.															
12 (NAS-9, 10) CDE 3,140	KSC Syn./30 10.0/7.0	Launch New										2			2
		Launch Refurb.													
		Retrieval													
HEAO-C															
13 (NAS-4) CDR 20,400	KSC 230/30 51.0/11.0	Launch New	1			1			1						2
		Launch Refurb.					1				1		1		2
		Retrieval													2
HEAO-C Revisits															
14 (NAS-5/4) CDR 6,000	KSC 230/30 13.0/14.0	Launch New													
		Launch Refurb. Revisit		2	2	2	2	2	2	2	2	2	2	2	22

Note: △ = Payloads launched on expendable launch vehicles.
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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program — Code No. / P/L Type / P/L Weight	Site / Orbit / L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Large Stellar Telescope															
15 (NAS-1) CDR 21,145	KSC 350/30 46.0/13.0	Launch New			1										1
		Launch Refurb.							1						1
		Retrieval							(1)						1
Large Stellar Telescope – Revisit															
16 (NAS-5/1) CDR 4,500	KSC 350/30 13.0/14.0	Launch New													
		Launch Refurb.													
		Revisit				2	2	2	1	2	2	2	2	2	17
Large Solar Observ.															
17 (NAS-2) CDR 25,527	KSC 350/30 58.0/15.0	Launch New					1								1
		Launch Refurb.										1			1
		Retrieval										(1)			1
Large Solar Observ. – Revisit															
18 (NAS-5/2) CDR 4,500	KSC 350/30 13.0/14.0	Launch New													
		Launch Refurb.													
		Revisit						2	2	2	2	1	2	2	13
Large Radio Observ.															
19 (NAS-3) CDR 18,950	KSC 350/30 31.0/14.0	Launch New							1						1
		Launch Refurb.													
		Retrieval													
Large Radio Observ. – Revisit															
20 (NAS-5/3) CDR 4,500	KSC 350/30 13.0/14.0	Launch New													
		Launch Refurb.													
		Revisit								2	2	2	2	2	10
Polar Earth Obs. Sat.															
21 (NEO-2) LCR 5,980	WTR 500/99.2 16.5/13.0	Launch New	△	1											2
		Launch Refurb.			1	1	1	1	1	1	1	1	1	1	10
		Retrieval		1	1	1	1	1	1	1	1	1	1	1	11

Note: △ = Payloads launched on expendable launch vehicles.
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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program (Code No. / P/L Type / P/L Weight)	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Syn. Earth Obs. Sat.															
22 (NEO-3) LCR 2,841	KSC Syn. Eq. 10.5/9.0	Launch New		1		1		1		1					4
		Launch Refurb.										1		1	2
		Retrieval								1		1		1	3
Earth Physics Sat.															
23 (NEO-5) LCR 1,760	WTR 400/90 9.0/7.0	Launch New		1	1	1									3
		Launch Refurb.				1			1		1		1		4
		Retrieval				1	1		1		1		1		5
Syn. Met. Sat.															
24 (NEO-8) LCE 2,670	KSC Syn. Eq. 9.5/9.0	Launch New				1	1								2
		Launch Refurb.													
		Retrieval													
Tiros															
25 (NEO-6) CDR 1,244	WTR 700/101 11.0/6.0	Launch New			1				1						2
		Launch Refurb.												1	1
		Retrieval							1					1	2
Polar Earth Res. Sat.															
26 (NEO-17) LCE 5,680	WTR 500/99 13.0/14.0	Launch New								2	4				6
		Launch Refurb.													
		Retrieval													
Syn. Earth Res. Sat.															
27 (NEO-4) LCR 2,889	KSC Syn. Eq. 10.5/9.0	Launch New			1	2	1								4
		Launch Refurb.									1	2			3
		Retrieval							1	2					3
Appl. Tech. Sat.															
28 (NCN-1) CDR 9,524	KSC Syn. Eq. 22.0/15.0	Launch New	1		1		1	1							4
		Launch Refurb.								1		1	1		3
		Retrieval							1	1		1	1		4

Note: △ = Payloads launched on expendable launch vehicles.
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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program Code No. / P/L Type / P/L Weight	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Small Appl. Sat. – Syn.															
29 (NCN-2) LCR 1,287	KSC Syn. Eq. 13.0/6.5	Launch New	1	1	1	1	1	1	1						7
		Launch Refurb.								1	1	1	1	1	5
		Retrieval							1	1	1	1	1	1	6
Small Appl. Sat. – Polar															
30 (NCN-2) LCR 1,287	WTR 300/3,000/90 13.0/6.5	Launch New	△	1	1	1	1	1	1						7
		Launch Refurb.								1	1	1	1	1	5
		Retrieval							1	1	1	1	1	1	6
Coop. Appl. – Syn.															
31 (NCN-3) LCE 2,927	KSC Syn. Eq. 19.0/11.0	Launch New	1					1							2
		Launch Refurb.													
		Retrieval													
Coop. Appl. – Polar															
32 (NCN-3) LCR 2,020	WTR 300/3,000/90 13.0/6.5	Launch New				1									1
		Launch Refurb.											1		1
		Retrieval							1				1		2
Medical Net. Sat.															
33 (NCN-11) CDE 2,070	KSC Syn Eq. 15.0/12.0	Launch New	○						2						2
		Launch Refurb.													
		Retrieval													
Educ. Broad. Sat.															
34 (NCN-12) CDE 3,520	KSC Syn. Eq. 25.0/10.0	Launch New		2											2
		Launch Refurb.													
		Retrieval													
Follow-On Sys. Dem.															
35 (NCN-13) CDR 2,440	KSC Syn. Eq. 16.0/12.5	Launch New			2	2	2	2	2						10
		Launch Refurb.								2	2	2	2	2	10
		Retrieval							2	2	2	2	2	2	12

Note: △ = Payloads launched on expendable launch vehicles.
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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program		Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Code No. / P/L Type / P/L Weight	Site / Orbit / L/D														
Track and Data Relay Sat.															
36 (NCN-5) CDR 2,797	KSC Syn. Eq. 18.0/10.5	Launch New	1	2	1		2	1							7
		Launch Refurb.									2	1			3
		Retrieval							2		2	1			5
Viking															
50 (NPL-1) CDE 7,720	KSC --- 12.0/10.0	Launch New	△		1										2
		Launch Refurb.													
		Retrieval													
Mars Sample Return															
51 (NPL-19,20) CDE 22,000	KSC --- 39.0/14.0	Launch New												2	2
		Launch Refurb.													
		Retrieval													
Venus Expl. Orb.															
52 (NPL-5) LCE 2,380	KSC --- 12.5/7.0	Launch New		1											1
		Launch Refurb.													
		Retrieval													
Venus Radar Map															
53 (NPL-6) CDE 7,900	KSC --- 12.0/10.0	Launch New				1									1
		Launch Refurb.													
		Retrieval													
Venus Expl. Land.															
54 (NPL-7) LCE 10,800	KSC --- 29.8/15.0	Launch New							1			1			2
		Launch Refurb.													
		Retrieval													
Jupiter Pioneer Orb.															
55 (NPL-11) CDE 930	KSC --- 15.0/10.0	Launch New				2									2
		Launch Refurb.													
		Retrieval													

Note: △ = Payloads launched on expendable launch vehicles.
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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program Code No. P/L Type P/L Weight	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Grand Tour		Launch New	△												2
56 (NPL-10) CDE 1,512	KSC --- 12.0/10.0	Launch Refurb.													
		Retrieval													
Jupiter Tops Orb. Probe		Launch New							1		1				2
57 (NPL-13) CDE 3,290	KSC --- 15.0/10.0	Launch Refurb.													
		Retrieval													
Uranus TOPS Orb. Probe		Launch New								1			1		2
58 (NPL-14) CDE 3,700	KSC --- 15.0/10.0	Launch Refurb.													
		Retrieval													
Asteroid Survey		Launch New						1							1
59 (NPL-15) CDE 1,900	KSC --- 20.0/10.0	Launch Refurb.													
		Retrieval													
Comet Rendezvous		Launch New				1			1						2
60 (NPL-18) CDE 2,070	KSC --- 20.0/10.0	Launch Refurb.													
		Retrieval													
Space Station Module Core and Crew		Launch New							1			1	1	3	6
61 (NSS-2) CDR 20,000	KSC 270/55 40.0/14.0	Launch Refurb.													
		Retrieval													
Space Sta. Mod. – Other		Launch New							5				3		8
62 (NSS-2) CDR 20,000	KSC 270/55 30.0/14.0	Launch Refurb.													
		Retrieval													

Note: △ = Payloads launched on expendable launch vehicles.
○ = Denotes deployment and retrieval cannot be accomplished on same flight (i.e., must occur at different times).

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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program (Code No. P/L Type P/L Weight)	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Crew Cargo															
63 (NSS-9) CDR 20,000	KSC 270/55 30.0/14.0	Launch New							1	1				2	4
		Launch Refurb.								5	6	6	6	6	29
		Retrieval							1	6	6	6	6	8	33
Physics Lab.															
64 (NSS-7,-10) CDR 22,000	KSC --- 32.0/14.0	Launch New									1				1
		Launch Refurb.													
		Retrieval													
Cosmic Ray Lab.															
65 (NSS-7,-10) CDR 24,881	KSC 270/55 41.0/15.0	Launch New				Flights Subsequent to 1990									
		Launch Refurb.													
		Retrieval													
Life Science Lab.															
66 (NSS-10,-11) CDR 33,000	KSC 270/55 58.0/14.0	Launch New							1						1
		Launch Refurb.											1		1
		Retrieval									1				1
Earth Obs. Lab.															
67 (NSS-7,-10) CDR 25,000	KSC 270/55 45.0/14.0	Launch New							1						1
		Launch Refurb.											1		1
		Retrieval									1				1
Comm./Nav. Lab.															
68 (NSS-10) CDR 19,000	KSC 270/55 38.0/14.0	Launch New									1				1
		Launch Refurb.													
		Retrieval													
Space Mfg. Lab.															
69 (NSS-10,-11) CDR 20,000	KSC 270/55 58.0/14.0	Launch New				Flights Subsequent to 1990									
		Launch Refurb.											1		1
		Retrieval													

Note: △ = Payloads launched on expendable launch vehicles.
⃝ = Denotes deployment and retrieval cannot be accomplished on same flight (i.e., must occur at different times).

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TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Continued)

Payload Program — Code No. / P/L Type / P/L Weight	Site Orbit L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Comsat															
70 (NCN-7) CDR 1,773	KSC Syn. Eq. 23.0/9.5	Launch New	△	1	1		2	1	1						8
		Launch Refurb.										2	1		3
		Retrieval							2			2	1		5
U.S. Domestic Comm.															
71 (NCN-8) CDR 4,137	KSC Syn. Eq. 26.0/15.0	Launch New	1	2	1	1	2	2	2						11
		Launch Refurb.								2	2	2	2	2	10
		Retrieval							2	2	2	2	2	2	12
Foreign Dom. Comm.															
72 (NCN-9) CDR 1,244	KSC Syn./28.5 13.0/6.0	Launch New		2	6	2	2								12
		Launch Refurb.							2	4	5	2	1		14
		Retrieval								4	5	2	1	2	14
Nav. and Traffic Control															
73 (NCN-10) CDR 894	KSC 16000/30000/29 9.0/6.0	Launch New	3	1	2		1		1						8
		Launch Refurb.									1		1		2
		Retrieval									1	1	1		3
Nav. and Traffic Control															
74 (NCN-10) CDR 894	KSC Syn./28.5 9.0/6.0	Launch New		1			1	1	1						4
		Launch Refurb.									1		1		2
		Retrieval									1	1	1		3
TOS Met.															
75 (NEO-7) CDR 1,244	WTR 700/101 7.0/6.0	Launch New	△	1	1	1	1	1	1						7
		Launch Refurb.								1	1	1	1	1	5
		Retrieval							1	1	1	1	1	1	6
Synch. Met.															
76 (NEO-15) CDR 1,250	KSC Syn. Eq. 9.0/6.0	Launch New	△	1	1	1	1	1	1						7
		Launch Refurb.								1	1	1	1	1	5
		Retrieval							1	1	1	1	1	1	6

Note: △ = Payloads launched on expendable launch vehicles.
○ = Denotes deployment and retrieval cannot be accomplished on same flight (i.e., must occur at different times).

TABLE 1. PAYLOAD CHARACTERISTICS AND SCHEDULE FOR 1971 MISSION MODEL (Concluded)

Payload Program Code No. / P/L Type / P/L Weight	Site / Orbit / L/D	Mode	79	80	81	82	83	84	85	86	87	88	89	90	Total
Polar Earth Res.		Launch New	△4												6
77 (NEO-16) LCR 6,380	WTR 500/99.2 16.0/14.0	Launch Refurb.			2		4		4				6		16
		Retrieval			4		4		4				6		18
Synch. Earth Res.		Launch New							4			2			6
78 (NEO-11) CDR 1,244	KSC Syn. Eq. 7.0/6.5	Launch Refurb.										2			2
		Retrieval										4			4
		Launch New													
		Launch Refurb.													
		Retrieval													
		Launch New													
		Launch Refurb.													
		Retrieval													
		Launch New													
		Launch Refurb.													
		Retrieval													
		Launch New													
		Launch Refurb.													
		Retrieval													
		Launch New													
		Launch Refurb.													
		Retrieval													

Note: △ = Payloads launched on expendable launch vehicles.
○ = Denotes deployment and retrieval cannot be accomplished on same flight (i.e., must occur at different times).

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TABLE 2. SPACE SHUTTLE SYSTEM TRAFFIC SUMMARY

"BEST MIX" 1985 TUG – NO SORTIES		1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	TOTAL
SHUTTLE														
DOD	– KSC	4	1	4	6	6	7	5	6	8	7	3	7	64
	– WTR	–	13	12	12	16	13	17	13	15	12	15	12	151
	SUB-TOTAL	4	14	16	18	22	20	22	19	23	19	18	19	215
NASA	– KSC	6	17	19	16	20	19	35	24	33	33	34	32	268
	– WTR	–	5	8	6	8	5	9	6	7	5	10	7	76
	SUB-TOTAL	6	22	27	22	28	24	44	30	40	38	44	38	366
TOTAL		10	36	43	40	50	44	66	49	63	57	63	58	581
SECOND/UPPER STAGE VEHICLES														
DOD	– KSC A / C	2 / 2	1 / 1	2 / 2	2 / 4	2 / 4	2 / 5	5	6	8	7	3	7	38
	– WTR A / C	– / 1	1 / –	1 / 1	1 / 1	2 / 3	1 / 1	3	3	3	2	4	2	17
	SUB-TOTAL A / C	2 / 2	2 / 1	3 / 2	2 / 5	4 / 7	3 / 6	8	9	11	9	7	9	53
NASA	– KSC A / C	1 / 5	7 / 7	6 / 10	5 / 7	8 / 7	6 / 8	21	13*	18	18	17*	13	100
	– WTR A / C	– / 1	3 / 1	3 / 1	4 / 1	2 / 1	4 / 1	3	4	2	4	2	5	20
	SUB-TOTAL A / C	1 / 5	10 / 8	9 / 10	9 / 7	10 / 7	10 / 8	24	17*	20	22	19*	18	120
AGENA / CENTAUR / EXPENDED TUG TOTAL A / C		3 / 7	12 / 8	12 / 12	11 / 12	14 / 14	13 / 12	32	26*	31	31	26*	27	173
KICK STAGE AGENA		–	–	–	–	–	–	2	–	1	1	–	4	6

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TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG

| Shuttle Flight No.[a,b] | Payload Number | | Stage |
	Earth-to-Orbit	Return	
1	13 (NAS-4)		
2	3 (NSP-1) 4 (NSP-2) Centaur		Centaur
3	28 (NCN-1) Centaur		Centaur
4	73 (NCN-10) 73 (NCN-10) 73 (NCN-10) Centaur		Centaur
5	71 (NCN-8) Centaur		Centaur
6	31 (NCN-3) 36 (NCN-5) 29 (NCN-2) Centaur		Centaur
7	1 (NAS-14) 1 (NAS-14)		
8	5 (NSP-3) Agena		Agena
9_D	DSU-2B1 Centaur		Centaur
10_D	DCN-1B DCN-1B Agena		Agena
11_D	DCN-4B Agena		Agena
12_D	DSU-2B2 Centaur		Centaur

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

Shuttle Flight No. [a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
1980			
1	4 (NSP-2) Agena		Agena
2	3 (NSP-1) 23 (NEO-5) Centaur		Centaur
3	20 (NAS-5/3)	20 (NAS-5/3)	
4	14 (NAS-5/4)	14 (NAS-5/4)	
5	2 (NAS-14) 36 (NCN-5) Centaur		Centaur
6	2 (NAS-14) 36 (NCN-5) Centaur		Centaur
7	22 (NEO-3) 29 (NCN-2) Centaur		Centaur
8	21 (NEO-2)	21 (NEO-2)	
9	30 (NCN-2) Agena		Agena
10	72 (NCN-9) 72 (NCN-9) Agena		Agena
11	73 (NCN-10) Agena		Agena
12	74 (NCN-10) Agena		Agena
13	71 (NCN-8) Centaur		Centaur

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
14	71 (NCN-8) Centaur		Centaur
15	70 (NCN-7) Agena		Agena
13	76 (NEO-15) Agena		Agena
17	52 (NPL-5) Agena		Agena
18	6 (NAS-15)		
19	34 (NCN-12) Centaur		Centaur
20	34 (NCN-12) Centaur		Centaur
21	5 (NSP-3) Agena		Agena
22	75 (NEO-7) Agena		Agena
23$_D$	DST-1B	DST-1B	
24$_D$	DST-1B	DST-1B	
25$_D$	DST-1B	DST-1B	
26$_D$	DST-1B	DST-1B	
27$_D$	DST-1B	DST-1B	
28$_D$	DST-3B	DST-3B	
29$_D$	DST-3B	DST-3B	
30$_D$	DST-3B	DST-3B	
31$_D$	DST-3B	DST-3B	

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

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| Shuttle Flight No.[a,b] | Payload Number | | Stage |
	Earth-to-Orbit	Return	
1980 (Concluded)			
32_D	DST-3B	DST-3B	
33_D	DCN-1B DCN-3B1 Agena		Agena
34_D	DME-1B DME-1B DME-1B Agena		Agena
35_D	DSU-4B		
35_D	DSU-4B		
1981			
1	9 (NAS-11) Centaur		Centaur
2	15 (NAS-1) 1 (NAS-14)	1 (NAS-14)	
3	3 (NSP-1) 4 (NSP-2) Centaur		Centaur
4	72 (NCN-9) 72 (NCN-9) 72 (NCN-9) Centaur		Centaur
5	72 (NCN-9) 72 (NCN-9) 72 (NCN-9) Centaur		Centaur
6	8 (NSP-7) Agena		Agena

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

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1981 (Continued)			
Shuttle Flight No.a,b	Payload Number		Stage
	Earth-to-Orbit	Return	
7	28 (NCN-1) Centaur		Centaur
8	27 (NEO-4) 33 (NCN-5) Centaur		Centaur
9	35 (NCN-13) 2 (NAS-14) Centaur		Centaur
10	35 (NCN-13) 29 (NCN-2) Centaur		Centaur
11	23 (NEO-5) 30 (NCN-2) Agena		Agena
12	25 (NEO-6) Agena		Agena
13	14 (NAS-5/4)	14 (NAS-5/4)	
14	14 (NAS-5/4)	14 (NAS-5/4)	
15	21 (NEO-2)	21 (NEO-2)	
16	70 (NCN-7) Agena		Agena
17	71 (NCN-8) Centaur		Centaur
18	23 (NEO-5) Agena		Agena
19	73 (NCN-10) 73 (NCN-10) Agena		Agena

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS,
BEST MIX, 1985 TUG (Continued)

1981 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
20	75 (NEC-7) Agena		Agena
21	77 (NEO-16)	77 (NEO-13)	
22	77 (NEO-13)	77 (NEO-13)	
23	77 (NEO-16)	77 (NEO-13)	
24	77 (NEO-16)	77 (NEO-13)	
25	5 (NSP-3) Agena		Agena
26	74 (NCN-10) Agena		Agena
27	50 (NPL-1) Centaur		Centaur
28_D	DST-1B	DST-1B	
29_D	DST-1B	DST-1B	
30_D	DST-1B	DST-1B	
31_D	DST-1B	DST-1B	
32_D	DST-1B	DST-1B	
33_D	DST-3B	DST-3B	
34_D	DST-3B	DST-3B	
35_D	DST-3B	DST-3B	
36_D	DST-3B	DST-3B	
37_D	DST-3B	DST-3B	
38_D	DCN-1B Agena		Agena

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

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TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
1981 (Concluded)			
39~D~	DSU-2B1 Centaur		Centaur
40~D~	DCN-4B Agena		Agena
41~D~	DSU-2B2 Centaur		Centaur
42~D~	DME-1B DME-1B DME-1B Agena		Agena
43~D~	DSU-4B	DSU-4B	
1982			
1	53 (NPL-6) Centaur		Centaur
2	60 (NPL-18) Agena		Agena
3	55 (NPL-11) Centaur		Centaur
4	55 (NPL-11) Centaur		Centaur
5	5 (NSP-3) Agena		Agena
6	13 (NAS-4)		
7	30 (NCN-2) 32 (NCN-3) Agena		Agena

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

1982 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
8	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
9	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
10	4 (NSP-2) Agena		Agena
11	3 (NSP-1) Agena		Agena
12	1 (NAS-14) 1 (NAS-14)	1 (NAS-14) 1 (NAS-14)	
13	35 (NCN-13) 29 (NCN-2) Centaur		Centaur
14	27 (NEO-4) 27 (NEO-4) Centaur		Centaur
15	35 (NCN-13) 22 (NEO-3) Centaur		Centaur
16	24 (NEO-8) Agena		Agena
17	23 (NEO-5)	23 (NEO-5)	
18	21 (NEO-2)	21 (NEO-2)	
19	72 (NCN-9) 72 (NCN-9) Agena		Agena
20	75 (NEO-7) Agena		Agena

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1982 (Continued)			
Shuttle Flight No. [a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
21	71 (NCN-8) Centaur		Centaur
22	76 (NEO-15) Agena		Agena
23$_D$	DST-1B	DST-1B	
24$_D$	DST-1B	DST-1B	
25$_D$	DST-1B	DST-1B	
26$_D$	DST-1B	DST-1B	
27$_D$	DST-1B	DST-1B	
28$_D$	DST-3B	DST-3B	
29$_D$	DST-3B	DST-3B	
30$_D$	DST-3B	DST-3B	
31$_D$	DST-3B	DST-3B	
32$_D$	DST-3B	DST-3B	
33$_D$	DCN-3B1 DCN-1B Agena		Agena
34$_D$	DSU-2B1 Centaur		Centaur
35$_D$	DSU-4B	DSU-4B	
36$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur
37$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

1982 (Concluded)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
38 D	DNA-2B2 Agena		Agena
39 D	DFS-1B Centaur		Centaur
40 D	DSU-2B2 Centaur		Centaur
1983			
1	17 (NAS-2)		
2	3 (NSP-1) 4 (NSP-2) Centaur		Centaur
3	5 (NSP-3) Agena		Agena
4	28 (NCN-1) Centaur		Centaur
5	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
6	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
7	30 (NCN-2) Agena		Agena
8		13 (NAS-4)	
9	1 (NAS-14) 1 (NAS-14)		
10	23 (NEO-5)	23 (NEO-5)	
11	21 (NEO-2)	21 (NEO-2)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1983 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
12	74 (NCN-10) Agena		Agena
13	72 (NCN-9) 72 (NCN-9) Agena		Agena
14	35 (NCN-13) 29 (NCN-2) Centaur		Centaur
15	35 (NCN-13) 27 (NEO-4) Centaur		Centaur
16	36 (NCN-5) 24 (NEO-8) Centaur		Centaur
17	36 (NCN-5) Agena		Agena
18	73 (NCN-10) Agena		Agena
19	75 (NEO-7) Agena		Agena
20	77 (NEO-16)	77 (NEO-16)	
21	77 (NEO-16)	77 (NEO-16)	
22	77 (NEO-16)	77 (NEO-16)	
23	77 (NEO-16)	77 (NEO-16)	
24	71 (NCN-8) Centaur		Centaur
25	71 (NCN-8) Centaur		Centaur

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

1983 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
26	70 (NCN-7) Agena		Agena
27	70 (NCN-7) Agena		Agena
28	76 (NEO-15) Agena		Agena
29[D]	DST-1B	DST-1B	
30[D]	DST-1B	DST-1B	
31[D]	DST-1B	DST-1B	
32[D]	DST-1B	DST-1B	
33[D]	DST-1B	DST-1B	
34[D]	DST-3B	DST-3B	
35[D]	DST-3B	DST-3B	
36[D]	DST-3B	DST-3B	
37[D]	DST-3B	DST-3B	
38[D]	DST-3B	DST-3B	
39[D]	DCN-2B DCN-2B Centaur		Centaur
40[D]	DCN-3B2 Agena		Agena
41[D]	DCN-4B Agena		Agena
42[D]	DSU-2B2 Centaur		Centaur

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

1983 (Concluded)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
43$_D$	DSU-3B1 DSU-3B1 Centaur		Centaur
44$_D$	DSU-3B1 DSU-3B1 Centaur		Centaur
45$_D$	DSU-4B	DSU-4B	
46$_D$	DME-1B DME-1B DME-1B Agena		Agena
47$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur
48$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur
49$_D$	DNA-2B2 Agena		Agena
50$_D$	DFS-1B Centaur		Centaur
1984			
1	59 (NPL-15) Agena		Agena
2	5 (NSP-3) Agena		Agena
3	10 (NAS-7) Agena		Agena

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

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1984 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
4	11 (NAS-8) Agena		Agena
5	28 (NCN-1) Centaur		Centaur
6	35 (NCN-13) 22 (NEO-3) Centaur		Centaur
7	35 (NCN-13) 2 (NAS-14) Centaur		Centaur
8	36 (NCN-5) 31 (NCN-3) 29 (NCN-2) Centaur		Centaur
9	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
10	14 (NAS-5/4) 16 (NAS-5/1)	14 (NAS-5/4) 16 (NAS-5/1)	
11	18 (NAS-5/2)	18 (NAS-5/2)	
12	1 (NAS-14) 18 (NAS-5/2)	18 (NAS-5/2)	
13	3 (NSP-1) Agena		Agena
14	4 (NSP-2) Agena		Agena
15	7 (NSP-6) 30 (NCN-2) Agena		Agena
16	21 (NEO-2)	21 (NEO-2)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
17	75 (NEO-7) Agena		Agena
18	71 (NCN-8) Centaur		Centaur
19	71 (NCN-8) Centaur		Centaur
20	70 (NCN-7) Agena		Agena
21	76 (NEO-15) Agena		Agena
22	Tug	Tug	Tug
23	Tug	Tug	Tug
24	Tug	Tug	Tug
25_D	DST-1B	DST-1B	
26_D	DST-1B	DST-1B	
27_D	DST-1B	DST-1B	
28_D	DST-1B	DST-1B	
29_D	DST-1B	DST-1B	
30_D	DST-3B	DST-3B	
31_D	DST-3B	DST-3B	
32_D	DST-3B	DST-3B	
33_D	DST-3B	DST-3B	
34_D	DST-3B	DST-3B	
35_D	DCN-2B DCN-2B Centaur		Centaur

(Table header: 1984 (Continued))

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

1984 (Concluded)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
36$_D$	DCN-3B1 Agena		Agena
37$_D$	DSU-2B2 Centaur		Centaur
38$_D$	DSU-4B	DSU-4B	
39$_D$	DME-1B DME-1B DME-1B Agena		Agena
40$_D$	DSU-2B1 Centaur		Centaur
41$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur
42$_D$	DNA-2B1 DNA-2B1 Centaur		Centaur
43$_D$	DNA-2B2 Agena		Agena
44$_D$	DFS-1B Centaur		Centaur
1985			
1	19 (NAS-3) 16 (NAS-5/1)	16 (NAS-5/1)	
2	23 (NEO-5)	23 (NEO-5) 7 (NSP-6)	
3	61 (NSS-2)		

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

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1985 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
4	62 (NSS-2) 62 (NSS-2)		
5	62 (NSS-2) 62 (NSS-2)		
6	62 (NSS-2)		
7	63 (NSS-9)	63 (NSS-9)	
8	66 (NSS-10, 11)		
9	67 (NSS-7, 10)		
10	57 (NPL-13) Agena		Agena
11	Tug	Tug	Tug
12	60 (NPL-18) Tug	Tug	Tug
13	54 (NPL-7) Agena		Agena
14	Tug	Tug	Tug
15	3 (NSP-1) 4 (NSP-2) Tug	3 (NSP-1) 4 (NSP-2) Tug	Tug
16	5 (NSP-3) Tug	Tug	Tug
17	13 (NAS-4)	15 (NAS-1)	
18	15 (NAS-1)	1 (NAS-14) 1 (NAS-14)	
19	14 (NAS-5/4) 18 (NAS-5/2)	14 (NAS-5/4) 18 (NAS-5/2)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS,
BEST MIX, 1985 TUG (Continued)

1985 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
20	14 (NAS-5/4) 18 (NAS-5/2)	14 (NAS-5/4) 18 (NAS-5/2)	
21	30 (NCN-2) Tug	30 (NCN-2) 32 (NCN-3) Tug	Tug
22	2 (NAS-14) 35 (NCN-13) Tug	2 (NAS-14) 35 (NCN-13) Tug	Tug
23	2 (NAS-14) 35 (NCN-13) Tug	2 (NAS-14) 35 (NCN-13) Tug	Tug
24	25 (NEO-6) Tug	25 (NEO-6) Tug	Tug
25	21 (NEO-2)	21 (NEO-2)	
26	73 (NCN-10) Tug	73 (NCN-10) Tug	Tug
27	74 (NCN-10) Tug	74 (NCN-10) Tug	Tug
28	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
29	77 (NEO-16)	77 (NEO-16)	
30	77 (NEO-16)	77 (NEO-16)	
31	77 (NEO-16)	77 (NEO-16)	
32	77 (NEO-16)	77 (NEO-16)	
33	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
34	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

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TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
35	78 (NEO–11) 78(NEO–11) Tug	70 (NCN–7) Tug	Tug
36	70 (NCN–7) Tug	70 (NCN–7) Tug	Tug
37	78 (NEO–11) 78 (NEO–11) Tug	Tug	Tug
38	76 (NEO–15) Tug	76 (NEO–15) Tug	Tug
39	29 (NCN–2) Tug	29 (NCN–2) Tug	Tug
40	Tug	NCN–1 Tug	Tug
41	Tug	NCN–1 Tug	Tug
42	Tug	NCN–5 Tug	Tug
43	Tug	NCN–5 Tug	Tug
44	Tug	NCN–9 NCN–9 Tug	Tug
45$_D$	DST–1B	DST–1B	
46$_D$	DST–1B	DST–1B	
47$_D$	DST–1B	DST–1B	
48$_D$	DST–1B	DST–1B	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

Shuttle Flight No. [a, b]	Payload Number		Stage
	Earth-to-Orbit	Return	
49$_D$	DST-1B	DST-1B	
50$_D$	DST-3B	DST-3B	
51$_D$	DST-3B	DST-3B	
52$_D$	DST-3B	DST-3B	
53$_D$	DST-3B	DST-3B	
54$_D$	DST-3B	DST-3B	
55$_D$	DCN-3B2 Tug	DCN-3B2 Tug	Tug
56$_D$	DCN-5B Tug	Tug	Tug
57$_D$	DCN-5B Tug	Tug	Tug
58$_D$	Tug	Tug	Tug
59$_D$	DSU-2B1 Tug	DSU-2B1 Tug	Tug
60$_D$	DSU-2B2 Tug	DSU-2B2 Tug	Tug
61$_D$	DSU-3B1 DSU-3B1 Tug	DSU-3B1 DSU-3B1 Tug	Tug
62$_D$	DSU-5B		
63$_D$	DSU-5B		
64$_D$	DSU-5B		
65$_D$	DSU-5B		
66$_D$	DFS-1B Tug	DFS-1B Tug	Tug

Table header: **1985 (Concluded)**

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1986			
Shuttle Flight No. [a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
1	63 (NSS-9)	63 (NSS-9)	
2	63 (NSS-9)	63 (NSS-9)	
3	63 (NSS-9)	63 (NSS-9)	
4	63 (NSS-9)	63 (NSS-9)	
5	63 (NSS-9)	63 (NSS-9)	
6	63 (NSS-9)	63 (NSS-9)	
7	58 (NPL-14) Tug		Tug (Exp.)
8	5 (NSP-3) Tug	Tug	Tug
9	Tug	Tug	Tug
10	28 (NCN-1) Tug	28 (NCN-1) Tug	Tug
11	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	
12	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
13	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	
14	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
15	29 (NCN-2) Tug	29 (NCN-2) Tug	Tug
16	26 (NEO-17)		
17	26 (NEO-17) 21 (NEO-2)	21 (NEO-2)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1986 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
18	4 (NSP-2) Tug	4 (NSP-2) Tug	Tug
19	3 (NSP-1) Tug	3 (NSP-1) Tug	Tug
20	1 (NAS-14) 1 (NAS-14)	1 (NAS-14) 1 (NAS-14)	
21	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
22	22 (NEO-3) Tug	27 (NEO-4) 22 (NEO-3) Tug	Tug
23	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
24	30(NCN-2) Tug	30 (NCN-2) 27 (NEO-4) Tug	Tug
25	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
26	72 (NCN-9) 72 (NCN-9) Tug	72 (NCN-9) 72 (NCN-9) Tug	Tug
27	72 (NCN-9) 72 (NCN-9) Tug	72 (NCN-9) 72 (NCN-9) Tug	Tug
28	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
29	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
30	76 (NEO-15) Tug	76 (NEO-15) Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1986 (Continued)			
Shuttle Flight No. [a, b]	Payload Number		Stage
	Earth-to-Orbit	Return	
31$_D$	DST-1B	DST-1B	
32$_D$	DST-1B	DST-1B	
33$_D$	DST-1B	DST-1B	
34$_D$	DST-1B	DST-1B	
35$_D$	DST-1B	DST-1B	
36$_D$	DST-3B	DST-3B	
37$_D$	DST-3B	DST-3B	
38$_D$	DST-3B	DST-3B	
39$_D$	DST-3B	DST-3B	
40$_D$	DST-3B	DST-3B	
41$_D$	DCN-2B Tug	DCN-2B Tug	Tug
42$_D$	DCN-3B1 Tug	DCN-3B1 Tug	Tug
43$_D$	DSU-3B2 Tug	DSU-3B2 Tug	Tug
44$_D$	DSU-3B1 DSU-3B1 Tug	DSU-3B1 DSU-3B1 Tug	Tug
45$_D$	DME-1B DME-1B DME-1B Tug	DME-1B DME-1B DME-1B Tug	Tug
46$_D$	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

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1986 (Concluded)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
47[D]	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug
48[D]	DNA-2B2 Tug	DNA-2B2 Tug	Tug
49[D]	DFS-1B Tug	DFS-1B Tug	Tug
1987			
1	63 (NSS-9)	63 (NSS-9)	
2	63 (NSS-9)	63 (NSS-9)	
3	63 (NSS-9)	63 (NSS-9)	
4	63 (NSS-9)	63 (NSS-9)	
5	63 (NSS-9)	63 (NSS-9)	
6	63 (NSS-9)	63 (NSS-9)	
7	57 (NPL-13) Agena		Agena
8	Tug	Tug	Tug
9	3 (NSP-1) 4 (NSP-2) Tug	3 (NSP-1) 4 (NSP-2) Tug	Tug
10	5 (NSP-3) Tug	Tug	Tug
11	8 (NSP-7) Tug	Tug	Tug
12	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	**Return**	**Stage**
	1987 (Continued)		
13	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
14	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	
15	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
16	29 (NCN-2) Tug	29 (NCN-2) Tug	Tug
17	26 (NEO-17)		
18	26 (NEO-17)		
19	26 (NEO-17)		
20	26 (NEO-17) 21 (NEO-2)	21 (NEO-2)	
21	1 (NAS-14)	1 (NAS-14)	
22	2 (NAS-14) 35 (NCN-13) Tug	2 (NAS-14) 35 (NCN-13) Tug	Tug
23	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
24	36 (NCN-5) Tug	36 (NCN-5) Tug	Tug
25	36 (NCN-5) Tug	36 (NCN-5) Tug	Tug
26	27 (NEO-4) Tug	27 (NEO-4) Tug	Tug
27	30 (NCN-2) Tug	30 (NCN-2) Tug	Tug
28	23 (NEO-5)	23 (NEO-5)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

1987 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
29	73 (NCN-10) Tug	73 (NCN-10) Tug	Tug
30	74 (NCN-10) Tug	74 (NCN-10) Tug	Tug
31	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
32		13 (NAS-4)	
33	72 (NCN-9) 72 (NCN-9) Tug	72 (NCN-9) 72 (NCN-9) Tug	Tug
34	72 (NCN-9) 72 (NCN-9) Tug	72 (NCN-9) 72 (NCN-9) Tug	Tug
35	72 (NCN-9) Tug	72 (NCN-9) Tug	Tug
36	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
37	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
38	76 (NEO-15) Tug	76 (NEO-15) Tug	Tug
39	64 (NSS-7, 10)	66 (NSS-10, 11)	
40	68 (NSS-10)	67 (NSS-7, 10)	
41[D]	DST-1B	DST-1B	
42[D]	DST-1B	DST-1B	
43[D]	DST-1B	DST-1B	
44[D]	DST-1B	DST-1B	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

| Shuttle Flight No. [a, b] | Payload Number | | Stage |
	Earth-to-Orbit	Return	
1987 (Continued)			
45 D	DST–1B	DST–1B	
46 D	DST–3B	DST–3B	
47 D	DST–3B	DST–3B	
48 D	DST–3B	DST–3B	
49 D	DST–3B	DST–3B	
50 D	DST–3B	DST–3B	
51 D	DCN–3B2 Tug	DCN–3B2 Tug	Tug
52 D	Tug	Tug	Tug
53 D	DCN–5B Tug	DCN–5B Tug	Tug
54 D	Tug	Tug	Tug
55 D	DSU–2B1 Tug	DSU–2B1 Tug	Tug
56 D	DSU–2B2 Tug	DSU–2B2 Tug	Tug
57 D	DSU–5B	DSU–5B	––
58 D	DSU–5B	DSU–5B	––
59 D	DME–1B DME–1B DME–1B Tug	DME–1B DME–1B DME–1B Tug	Tug
60 D	DNA–2B1 DNA–2B1 Tug	DNA–2B1 DNA–2B1 Tug	Tug
61 D	DNA–2B1 DNA–2B1 Tug	DNA–2B1 DNA–2B1 Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

1987 (Concluded)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
62$_D$	DNA-2B2 Tug	DNA-2B2 Tug	Tug
63$_D$	DFS-1B Tug	DFS-1B Tug	Tug
1988			
1	63 (NSS-9)	63 (NSS-9)	
2	63 (NSS-9)	63 (NSS-9)	
3	63 (NSS-9)	63 (NSS-9)	
4	63 (NSS-9)	63 (NSS-9)	
5	63 (NSS-9)	63 (NSS-9)	
6	63 (NSS-9)	63 (NSS-9)	
7	61 (NSS-2)		
8	54 (NPL-7) Agena		Agena
9	Tug	Tug	Tug
10	5 (NSP-3) Tug	Tug	Tug
11	12 (NAS-9,10) 12 (NAS-9,10) Tug	Tug	Tug
12	17 (NAS-2)		
13	Tug	Tug	Tug
14	28 (NCN-1) Tug	28 (NCN-1) Tug	Tug
15	16 (NAS-5/1) 20 (NAS-5/3)	16 (NAS-5/1) 20 (NAS-5/3)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

Shuttle Flight No. [a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
16	14 (NAS-5/4) 18 (NAS-5/2)	14 (NAS-5/4) 18 (NAS-5/2)	
17	30 (NCN-2) Tug	30 (NCN-2) Tug	Tug
18	4 (NSP-2) Tug	4 (NSP-2) Tug	Tug
19	1 (NAS-14) 16 (NAS-5/1)	16 (NAS-5/1)	
20	3 (NSP-1) Tug	3 (NSP-1) Tug	Tug
21	1 (NAS-14)	17 (NAS-2)	
22	20 (NAS-5/3)	20 (NAS-5/3)	
23	14 (NAS-5/4)	14 (NAS-5/4)	
24	21 (NEO-2)	21 (NEO-2)	
25	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
26	22 (NEO-3) 29 (NCN-2) Tug	22 (NEO-3) 29 (NCN-2) Tug	Tug
27	36 (NCN-5) Tug	36 (NCN-5) Tug	Tug
28	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
29	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
30	27 (NEO-4) 27 (NEO-4) Tug	Tug	Tug

Table header spanning "1988 (Continued)"

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

1988 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
31	72 (NCN-9) 72 (NCN-9) Tug	72 (NCN-9) 72 (NCN-9) Tug	Tug
32	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
33	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
34	78 (NEO-11) 78 (NEO-11) Tug	78 (NEO-11) 78 (NEO-11) Tug	Tug
35	78 (NEO-11) 78 (NEO-11) Tug	78 (NEO-11) 78 (NEO-11) Tug	Tug
36	70 (NCN-7) Tug	70 (NCN-7) Tug	Tug
37	70 (NCN-7) Tug	70 (NCN-7) Tug	Tug
38	76 (NEO-15) Tug	76 (NEO-15) Tug	Tug
39[D]	DST-1B	DST-1B	
40[D]	DST-1B	DST-1B	
41[D]	DST-1B	DST-1B	
42[D]	DST-1B	DST-1B	
43[D]	DST-1B	DST-1B	
44[D]	DST-3B	DST-3B	
45[D]	DST-3B	DST-3B	
46[D]	DST-3B	DST-3B	

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No. [a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
1988 (Concluded)			
47_D	DST-3B	DST-3B	
48_D	DST-3B	DST-3B	
49_D	DCN-2B Tug	DCN-2B Tug	Tug
50_D	DCN-3B1 Tug	DCN-3B1 Tug	Tug
51_D	DSU-2B1 Tug	DSU-2B1 Tug	Tug
52_D	DSU-2B2 Tug	DSU-2B2 Tug	Tug
53_D	DSU-3B1 DSU-3B1 Tug	DSU-3B1 DSU-3B1 Tug	Tug
54_D	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug
55_D	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug
56_D	DNA-2B2 Tug	DNA-2B2 Tug	Tug
57_D	DFS-1B Tug	DFS-1B Tug	Tug
1989			
1	63 (NSS-9)	63 (NSS-9)	
2	63 (NSS-9)	63 (NSS-9)	
3	63 (NSS-9)	63 (NSS-9)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
4	63 (NSS-9)	63 (NSS-9)	
5	63 (NSS-9)	63 (NSS-9)	
6	63 (NSS-9)	63 (NSS-9)	
7	58 (NPL-14) Tug		Tug (Exp.)
8	3 (NSP-1) 4 (NSP-2) Tug	3 (NSP-1) 4 (NSP-2) Tug	Tug
9	5 (NSP-3) Tug	Tug	Tug
10	10 (NAS-7) Tug	Tug	Tug
11	11 (NAS-8) Tug	Tug	Tug
12	13 (NAS-4)		
13	Tug	Tug	Tug
14	28 (NCN-1) Tug	28 (NCN-1) Tug	Tug
15	30 (NCN-2) 32 (NCN-3) Tug	30 (NCN-2) 32 (NCN-3) Tug	Tug
16	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	
17	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
18	16 (NAS-5/1) 18 (NAS-5/2)	16 (NAS-5/1) 18 (NAS-5/2)	

(Table heading: 1989 (Continued))

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS,
BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	1989 (Continued)		
	Earth-to-Orbit	Return	
19	20 (NAS-5/3) 14 (NAS-5/4)	20 (NAS-5/3) 14 (NAS-5/4)	
20	1 (NAS-14) 1 (NAS-14)	1 (NAS-14) 1 (NAS-14)	
21	23 (NEO-5)	23 (NEO-5)	
22	21 (NEO-2)	21 (NEO-2)	
23	73 (NCN-10) Tug	73 (NCN-10) Tug	Tug
24	74 (NCN-10) Tug	74 (NCN-10) Tug	Tug
25	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
26	77 (NEO-16)	77 (NEO-16)	
27	77 (NEO-16)	77 (NEO-16)	
28	77 (NEO-16)	77 (NEO-16)	
29	77 (NEO-16)	77 (NEO-16)	
30	77 (NEO-16)	77 (NEO-16)	
31	77 (NEO-16)	77 (NEO-16)	
32	29 (NCN-2) Tug	29 (NCN-2) 2 (NAS-14) Tug	Tug
33	35 (NCN-13) Tug	35 (NCN-13) 2 (NAS-14) Tug	Tug
34	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

1989 (Continued)			
Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
35	72 (NCN-9) Tug	72 (NCN-9) Tug	Tug
36	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
37	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
38	70 (NCN-7) Tug	70 (NCN-7) Tug	Tug
39	76 (NEO-15) Tug	76 (NEO-15) Tug	Tug
40	61 (NSS-2)		
41	62 (NSS-2) 62 (NSS-2)		
42	62 (NSS-2)		
43	66 (NSS-10, 11)		
44	67 (NSS-7, 10)	68 (NSS-10)	
45$_D$	DST-1B	DST-1B	
46$_D$	DST-1B	DST-1B	
47$_D$	DST-1B	DST-1B	
48$_D$	DST-1B	DST-1B	
49$_D$	DST-1B	DST-1B	
50$_D$	DST-3B	DST-3B	
51$_D$	DST-3B	DST-3B	
52$_D$	DST-3B	DST-3B	
53$_D$	DST-3B	DST-3B	
54$_D$	DST-3B	DST-3B	

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	**Return**	
1989 (Concluded)			
55$_D$	DCN–2B Tug	DCN–2B Tug	Tug
56$_D$	DCN–5B Tug	DCN–5B Tug	Tug
57$_D$	DCN–3B2 Tug	DCN–3B2 Tug	Tug
58$_D$	DSU–2B2 Tug	DSU–2B2 Tug	Tug
59$_D$	DSU–3B1 DSU–3B1 Tug	DSU–3B1 DSU–3B1 Tug	Tug
60$_D$	DSU–5B	DSU–5B	--
61$_D$	DSU–5B	DSU–5B	--
62$_D$	DME–1B DME–1B DME–1B Tug	DME–1B DME–1B DME–1B Tug	Tug
63$_D$	DFS–1B Tug	DFS–1B Tug	Tug
1990			
1	63 (NSS–9)	63 (NSS–9)	
2	63 (NSS–9)	63 (NSS–9)	
3	63 (NSS–9)	63 (NSS–9)	
4	63 (NSS–9)	63 (NSS–9)	
5	63 (NSS–9)	63 (NSS–9)	
6	63 (NSS–9)	63 (NSS–9)	
7	63 (NSS–9)	63 (NSS–9)	

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
8	63 (NSS–9)	63 (NSS–9)	
9	61 (NSS–2)		
10	61 (NSS–2)		
11	61 (NSS–2)		
12	51 (NPL–19) Agena		Agena
13	51 (NPL–20) Agena		Agena
14	Tug	Tug	Tug
15	Tug	Tug	Tug
16	51 (NPL–19) Agena		Agena
17	51 (NPL–20) Agena		Agena
18	Tug	Tug	Tug
19	Tug	Tug	Tug
20	5 (NSP–3) Tug	Tug	Tug
21	16 (NAS–5/1) 18 (NAS–5/2)	16 (NAS–5/1) 18 (NAS–5/2)	
22	20 (NAS–5/3) 14 (NAS–5/4)	20 (NAS–5/3) 14 (NAS–5/4)	
23	16 (NAS–5/1) 18 (NAS–5/2)	16 (NAS–5/1) 18 (NAS–5/2)	
24	20 (NAS–5/3) 14 (NAS–5/4)	20 (NAS–5/3) 14 (NAS–5/4)	

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

Shuttle Flight No.[a,b]	Payload Number		Stage
	Earth-to-Orbit	Return	
25	30 (NCN-2) Tug	30 (NCN-2) Tug	Tug
26	4 (NSP-2) Tug	4 (NSP-2) Tug	Tug
27	3 (NSP-1) Tug	3 (NSP-1) Tug	Tug
28	7 (NSP-6)	7 (NSP-6)	
29	2 (NAS-14) 22 (NEO-3) Tug	2 (NAS-14) 22 (NEO-3) Tug	Tug
30	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
31	2 (NAS-14) 29 (NCN-2) Tug	2 (NAS-14) 29 (NCN-2) Tug	Tug
32	35 (NCN-13) Tug	35 (NCN-13) Tug	Tug
33	25 (NEO-6) Tug	25 (NEO-6) Tug	Tug
34	21 (NEO-2)	21 (NEO-2)	
35	75 (NEO-7) Tug	75 (NEO-7) Tug	Tug
36	72 (NCN-9) 72 (NCN-9) Tug	Tug	Tug
37	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug
38	71 (NCN-8) Tug	71 (NCN-8) Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS, BEST MIX, 1985 TUG (Continued)

1990 (Continued)			
Shuttle Flight No. a, b	Payload Number		Stage
	Earth-to-Orbit	Return	
39	76 (NEO-15) Tug	NEO-15 Tug	Tug
40_D	DST-1B	DST-1B	
41_D	DST-1B	DST-1B	
42_D	DST-1B	DST-1B	
43_D	DST-1B	DST-1B	
44_D	DST-1B	DST-1B	
45_D	DST-3B	DST-3B	
46_D	DST-3B	DST-3B	
47_D	DST-3B	DST-3B	
48_D	DST-3B	DST-3B	
49_D	DST-3B	DST-3B	
50_D	DCN-2B Tug	DCN-2B Tug	Tug
51_D	DCN-3B1 Tug	DCN-3B1 Tug	Tug
52_D	DCN-2B1 Tug	DCN-2B1 Tug	Tug
53_D	DSU-2B2 Tug	DSU-2B2 Tug	Tug
54_D	DME-1B DME-1B DME-1B Tug	DME-1B DME-1B DME-1B Tug	Tug
55_D	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug

a. Subscript D = DoD Flight

b. Flight numbers do not represent a priority or a sequence of flights.

TABLE 3. PAYLOAD COMBINATIONS AND FLIGHTS,
BEST MIX, 1985 TUG (Concluded)

1990 (Concluded)			
Shuttle Flight No. [a, b]	Payload Number		Stage
	Earth-to-Orbit	Return	
56[D]	DNA-2B1 DNA-2B1 Tug	DNA-2B1 DNA-2B1 Tug	Tug
57[D]	DNA-2B2 Tug	DNA-2B2 Tug	Tug
58[D]	DFS-1B Tug	DFS-1B Tug	Tug

a. Subscript D = DoD Flight
b. Flight numbers do not represent a priority or a sequence of flights.

APPROVAL

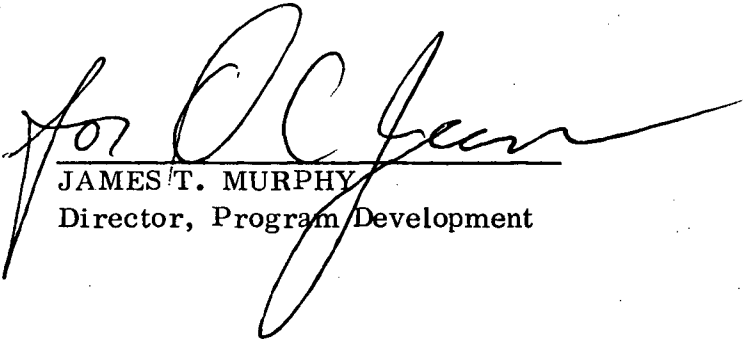## SPACE SHUTTLE TRAFFIC MODEL DEVELOPED FROM 1971 MISSION MODEL

By Shuttle Utilization Planning Office

The information in this report has been reviewed for security classi-fication. Review of any information concerning Department of Defense or Atomic Energy Commission programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

This document has also been reviewed and approved for technical accuracy.

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