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NASA
National Aeronautics and
Space Administration

SPACE STATION FREEDOM

THOMAS L. MOSER
Deputy Associate Administrator
for Office of Space Station

FEBRUARY 8, 1989

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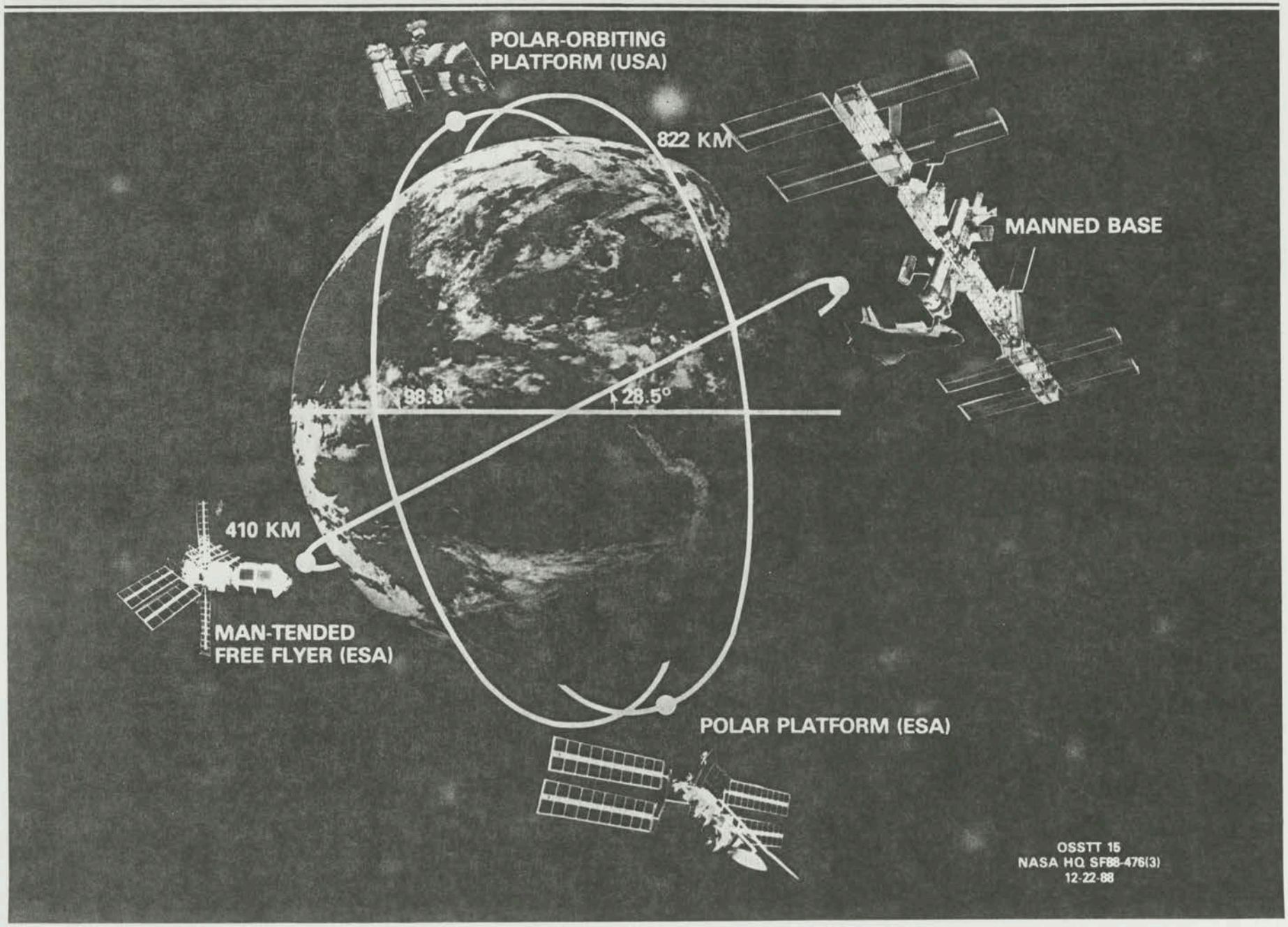
INTERNATIONAL SPACE STATION COMPLEX



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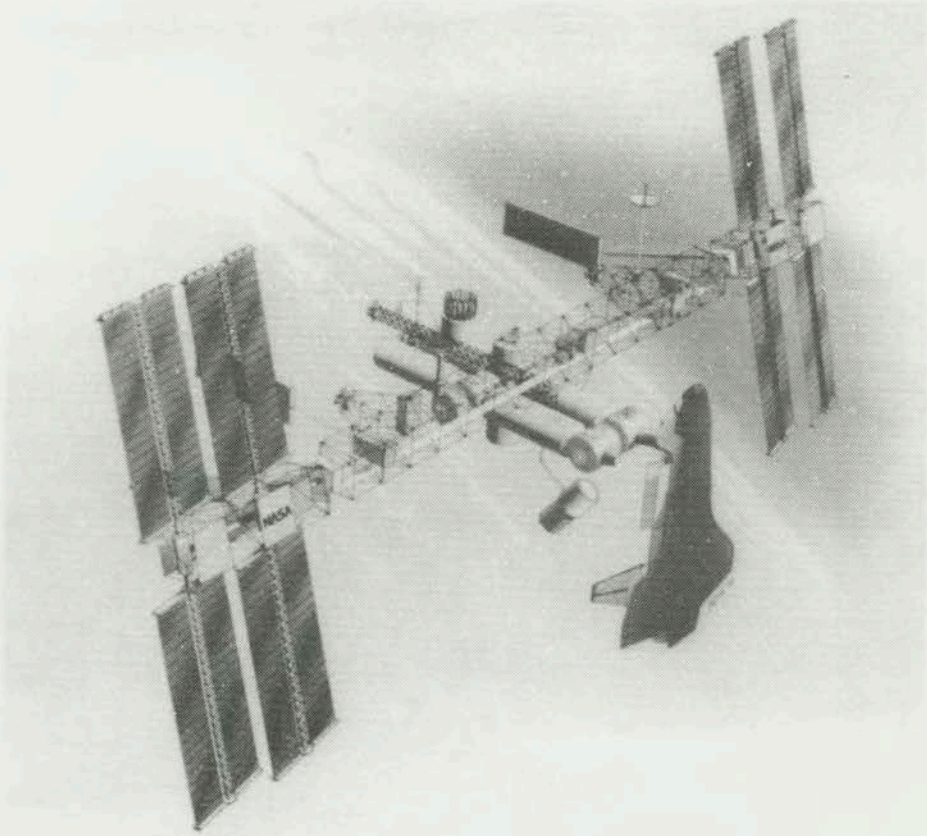
SPACE STATION

- ENHANCE CAPABILITIES FOR SPACE SCIENCE AND APPLICATIONS
- STIMULATE ADVANCED TECHNOLOGIES
- PROMOTE INTERNATIONAL COOPERATION
- DEVELOP FURTHER THE COMMERCIAL POTENTIAL OF SPACE
- CHALLENGE SOVIET LEAD IN SPACE STATIONS
- CONTRIBUTE TO AMERICAN PRIDE AND PRESTIGE
- STIMULATE INTEREST IN SCIENCE AND ENGINEERING EDUCATION
- PROVIDE OPTIONS FOR FUTURE ENDEAVORS IN SPACE



ASSURE FREE WORLD LEADERSHIP IN SPACE DURING THE 1990's AND BEYOND

OSSTT-68C
NASA HQ S87-479(3)
5-26-87

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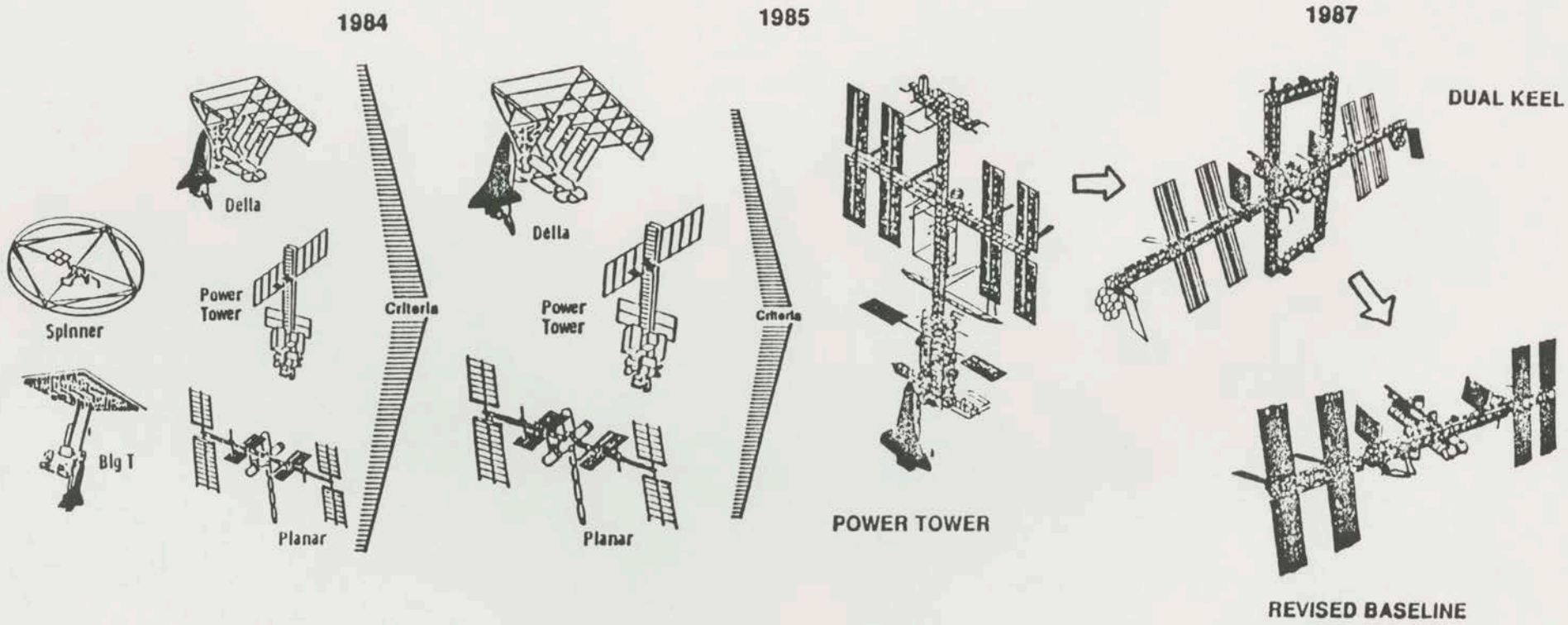
SPACE STATION CONFIGURATION CONVERGENCE



OSS-10786
1/23/89

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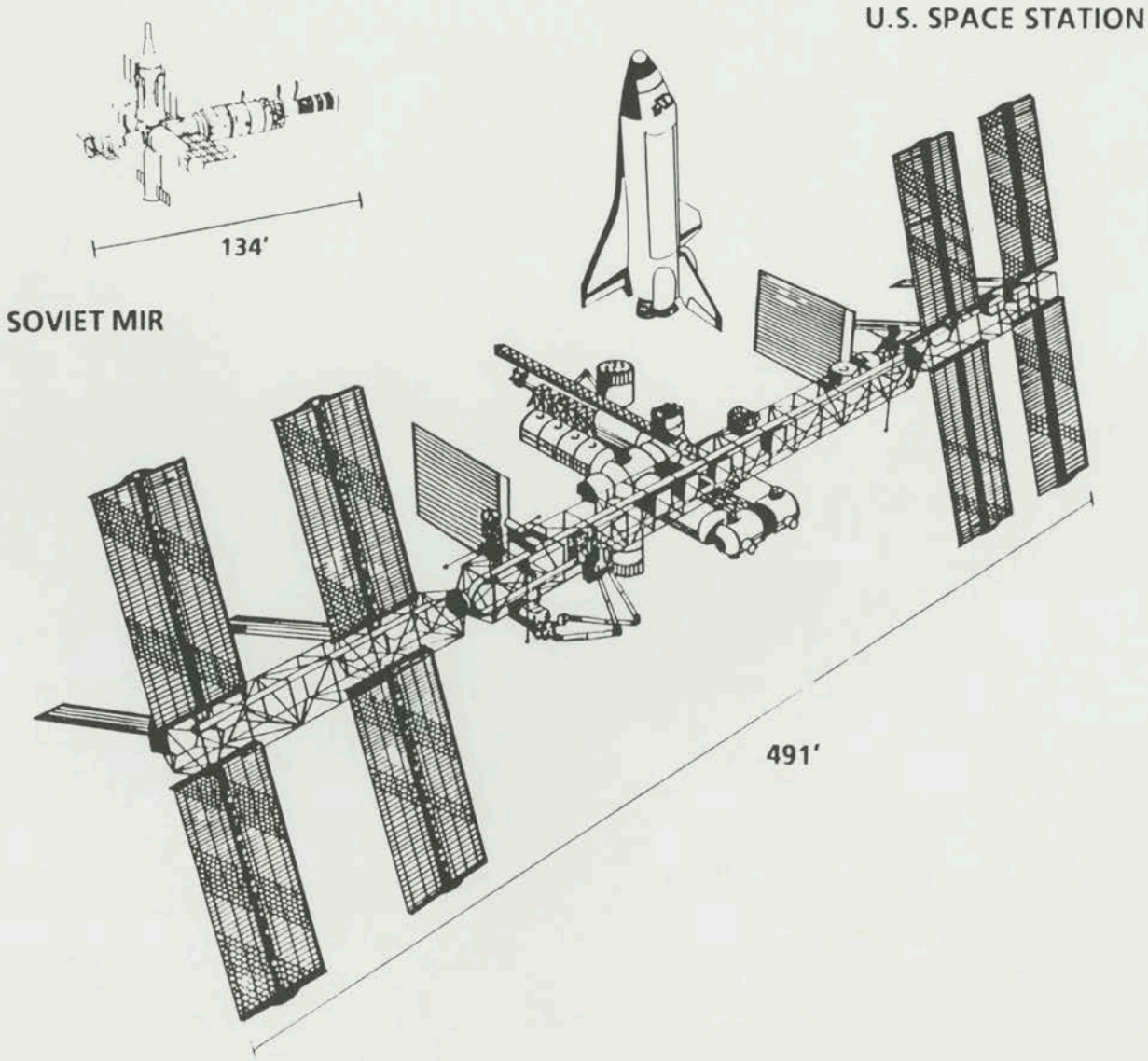
U.S. AND SOVIET SPACE STATION PROGRAMS



OSSTT-34N
9/28/88

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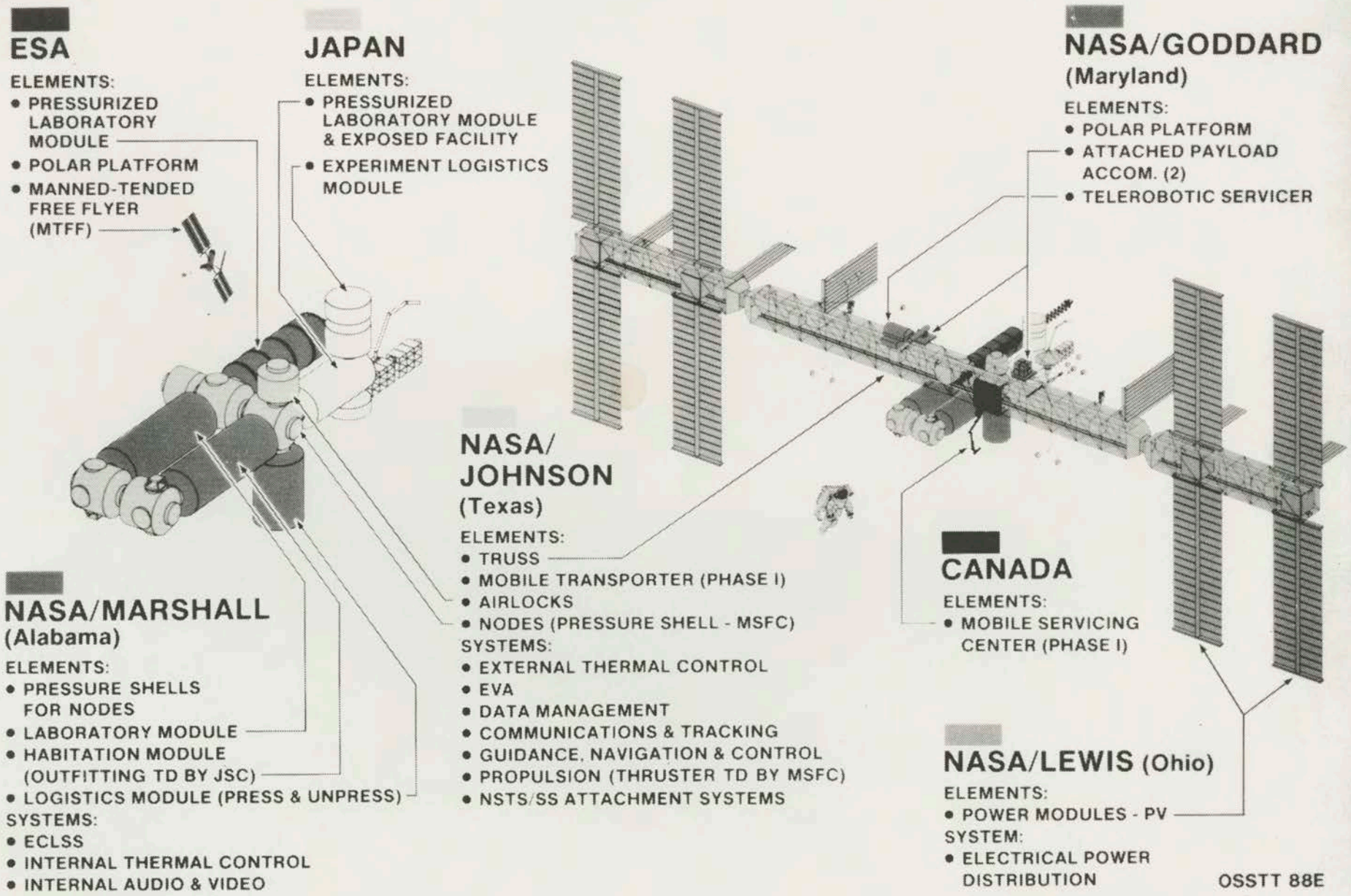
SPACE STATION FREEDOM



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CANADA

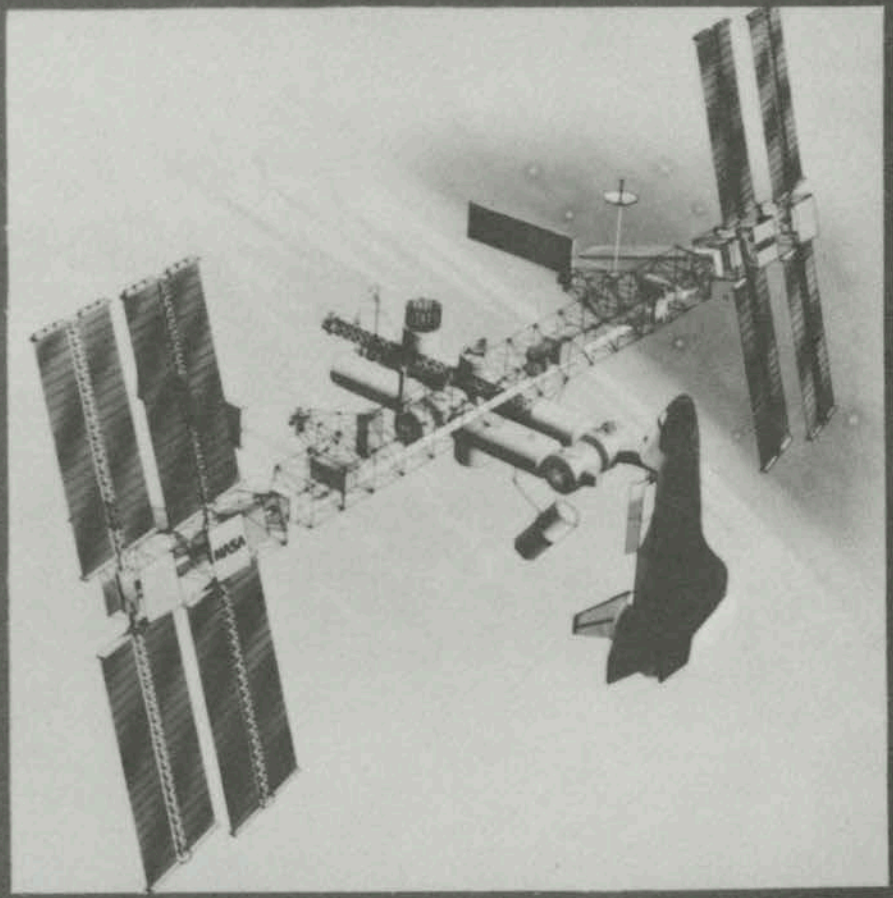
- MOBILE SERVICING SYSTEM

EUROPE

- ATTACHED PRESSURIZED MODULE
- POLAR PLATFORM
- MAN-TENDED FREE FLYER

JAPAN

- JAPANESE EXPERIMENT MODULE



OSSTT 1A

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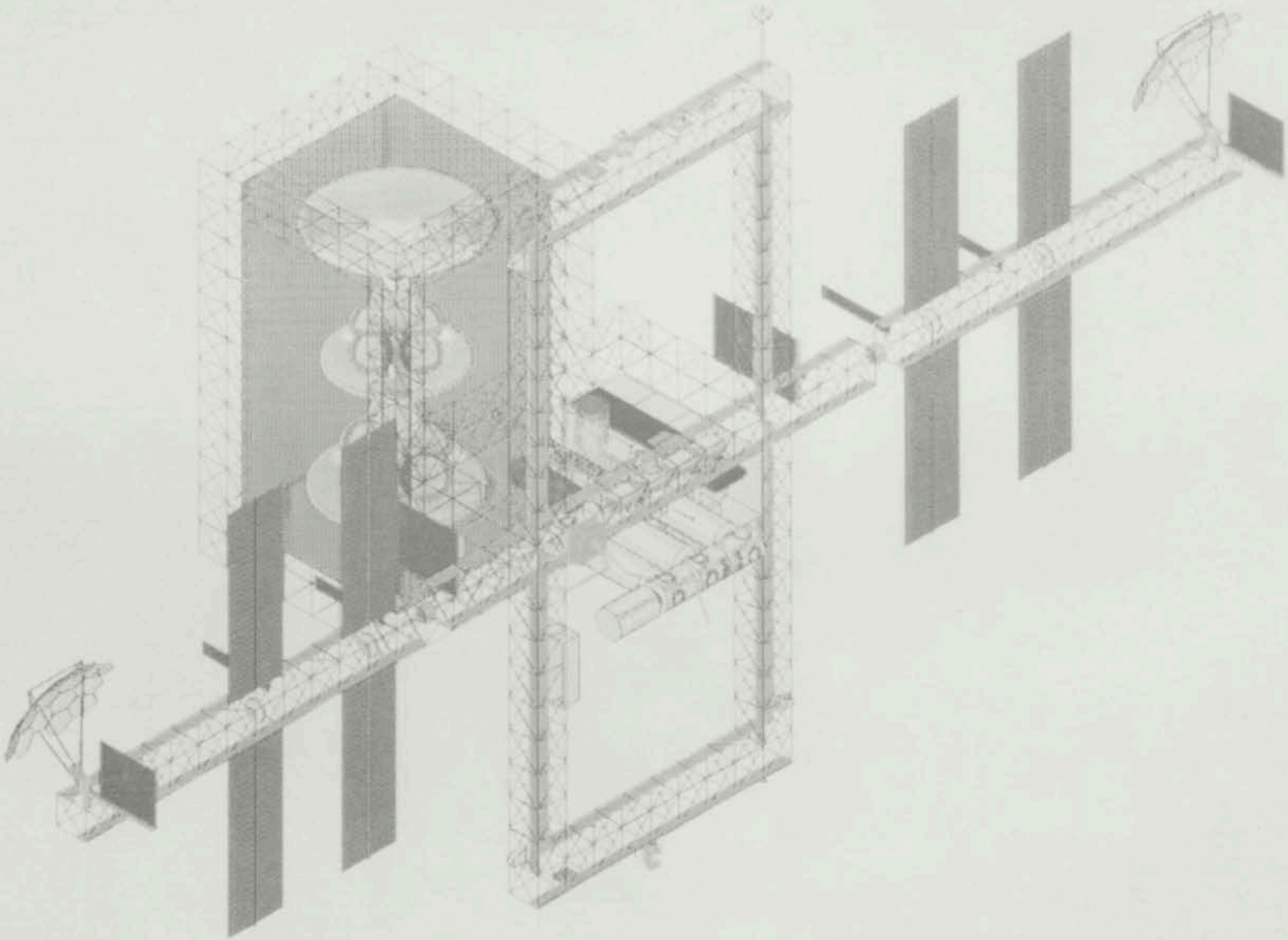
Space Station Configured For Manned Mars Accommodation



LaRC SSO SE&I

OSSTT-22D
NASA HQ S87-829 (3)
8-14-87

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WHY BUILD A SPACE STATION NOW?

- Leadership
  - -- Positions the U.S. in a major way toward leading with the best technology in the 21st century

- Competitiveness
  - -- Maintain the fragile technology lead in the world
  - -- Soviet Union has had permanent manned presence in space since April, 1987
  - -- Other countries will also build manned space stations

- International commitment
  - -- Agreements signed among the U.S., Canada, Japan, and European Space Agency (9 countries) to build Space Station Freedom (space assembly beginning in 1995)

- At Edwards Air Force Base on October 3, 1988, now President Bush stated that he wants to have the U.S. permanently in space by 1996

- Presidential direction
  "Tonight I am directing NASA to develop a permanently manned space station and to do it within a decade." January, 1984

OSS-10793
1/30/89

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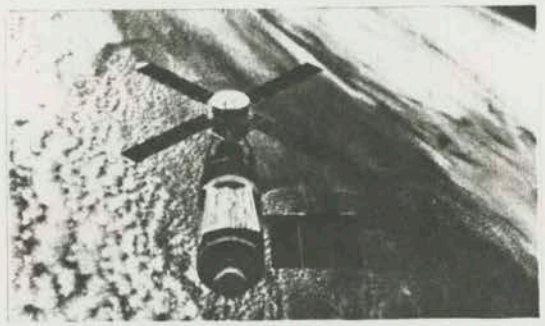
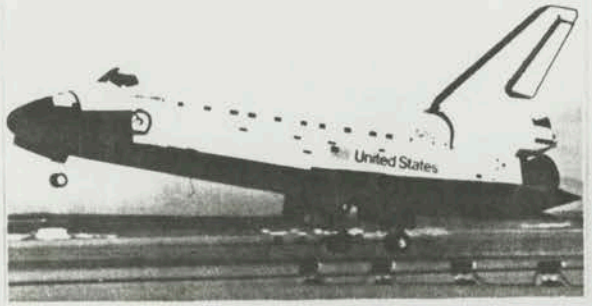
A COMPARISON

U.S.



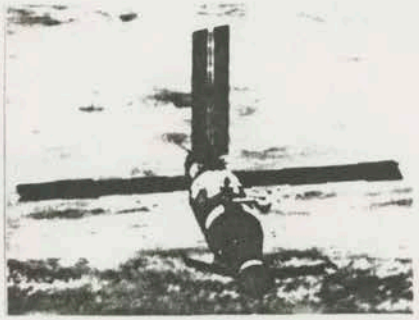
SKYLAB 1973



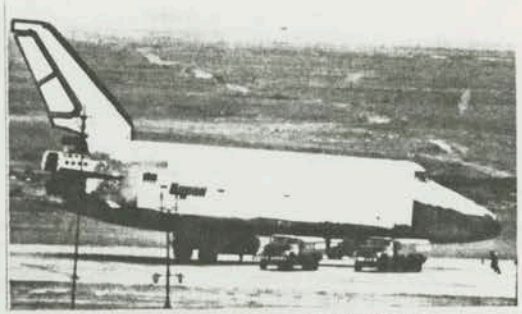
ORBITER 1981

SUIT/MMU
1984

U.S.S.R.

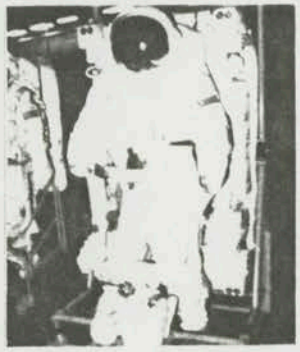


MIR 1986



ORBITER 1988 Courtesy of Aviation Week

SUIT/MMU
1988
Courtesy of
Aviation Week



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1-11-89

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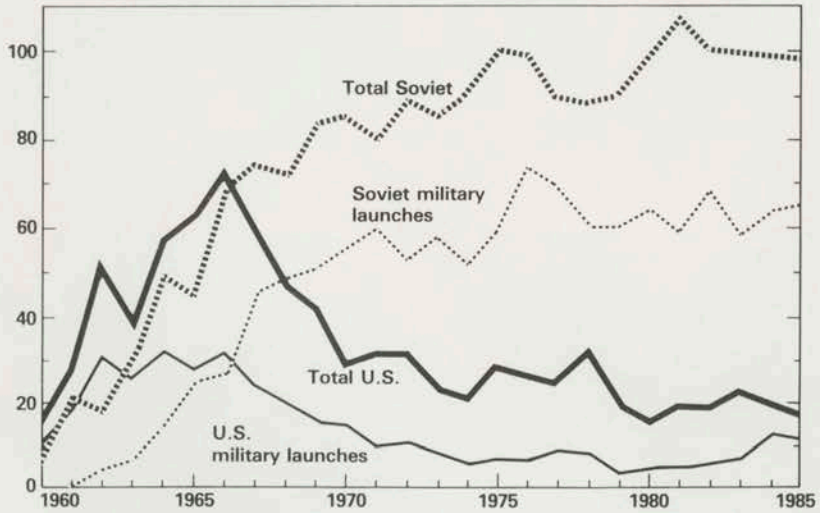
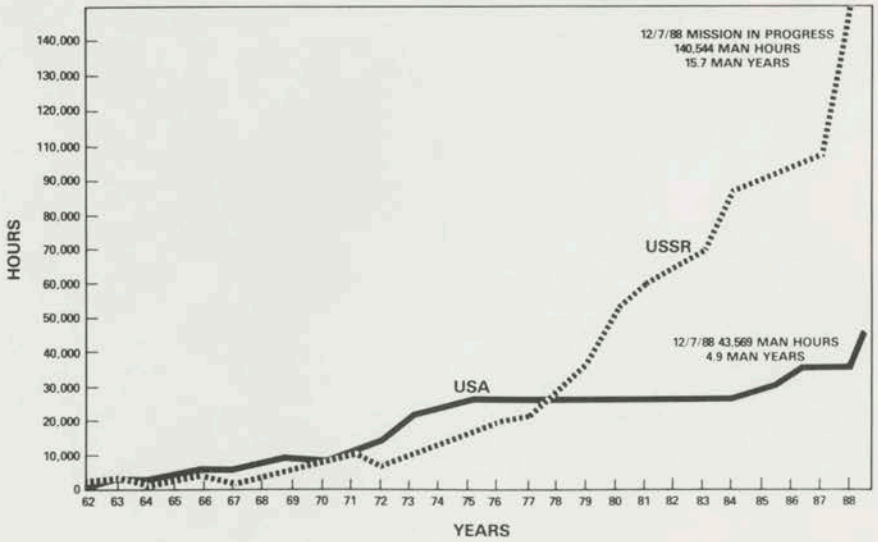
A COMPARISON

SOVIET AND U.S. SUCCESSFUL LAUNCHES



Source: U.S. Department of Defense

USA/USSR CUMULATIVE MAN HOURS IN SPACE



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PROGRAM ACCOMPLISHMENTS

- Configuration finalized
- Program architecture defined
- Levels I, II, III organizations in place
- International agreements signed
- Prime contracts definitized
  - -- Two hardware contracts remain
    - Flight Telerobotic Servicer - Goddard
    - Core Electronics Contract - KSC
- Program Requirements Review completed
- Preliminary design and development work in progress

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01/03/89

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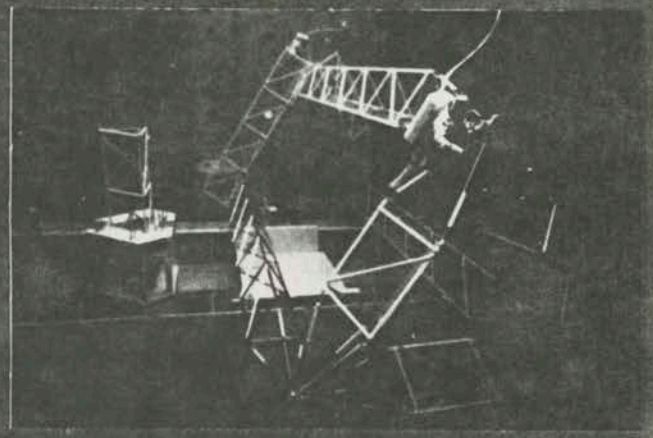
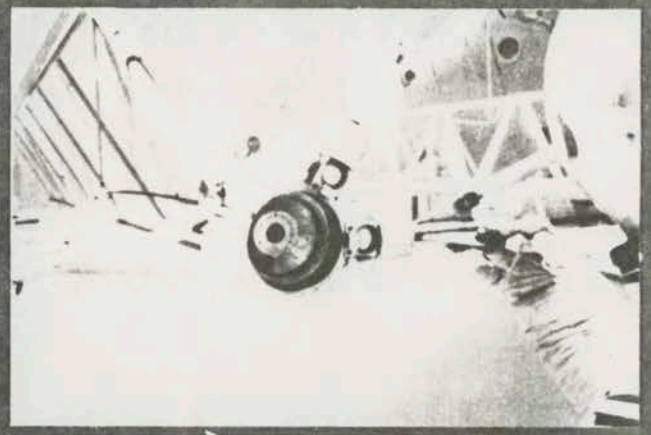
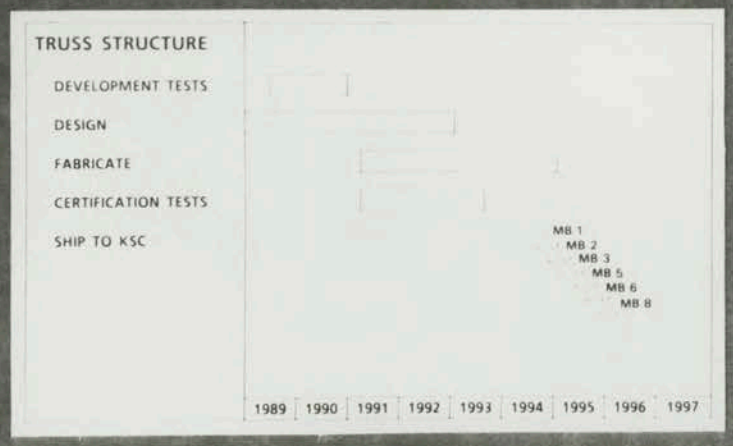
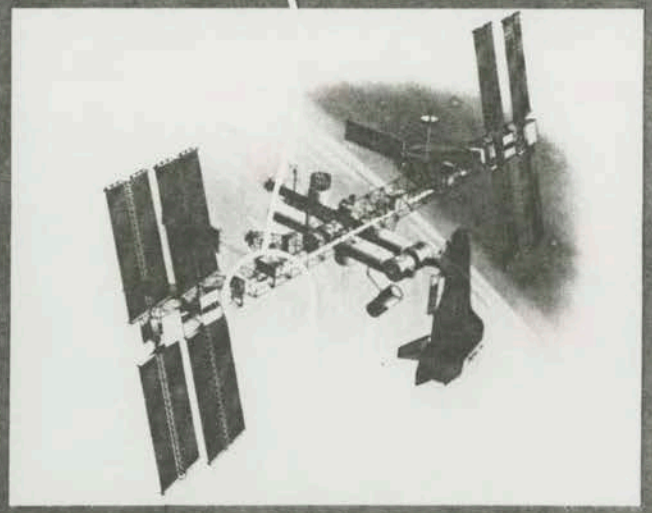
TRUSS STRUCTURE





DEVELOPMENT TESTS





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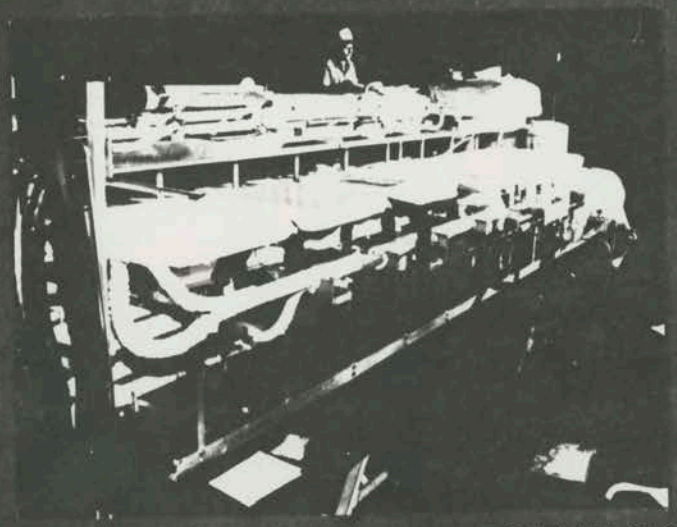
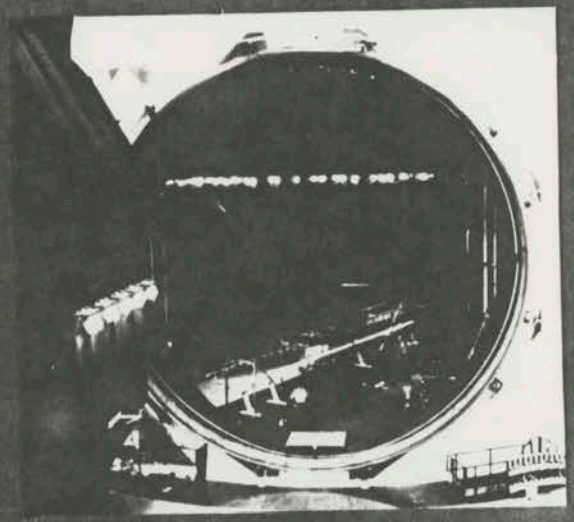
THERMAL CONTROL SYSTEM





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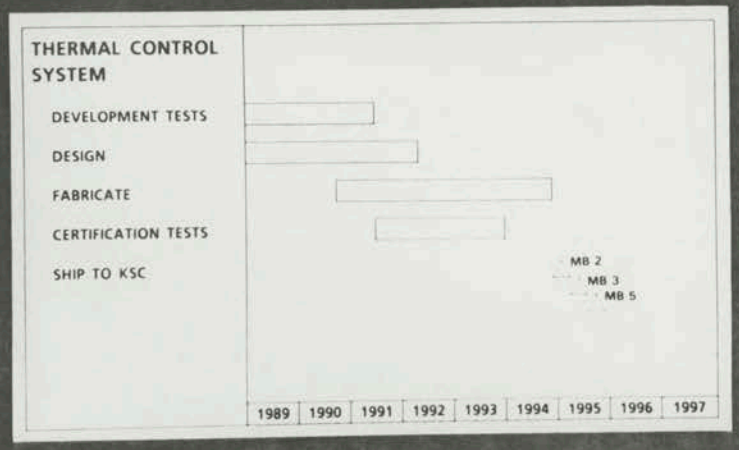

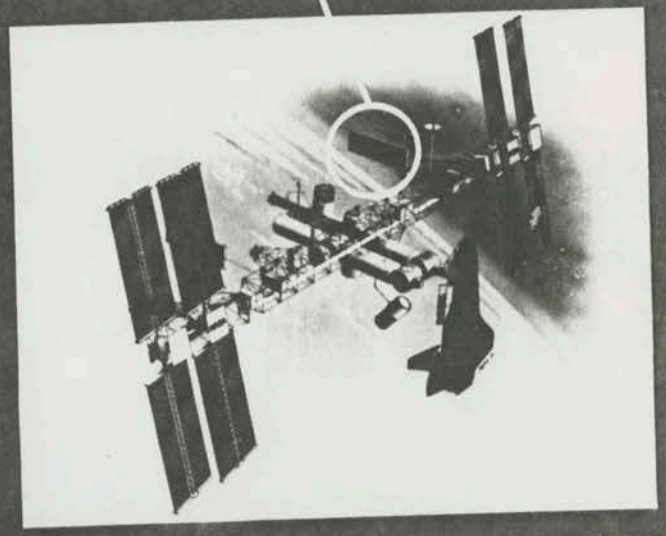

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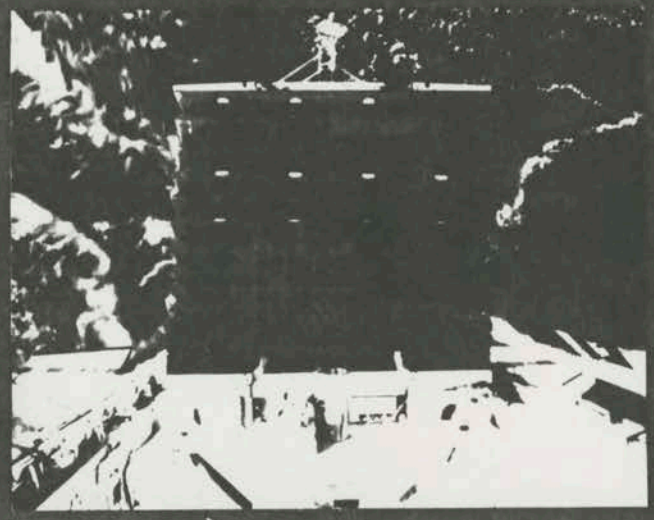
POWER SYSTEMS



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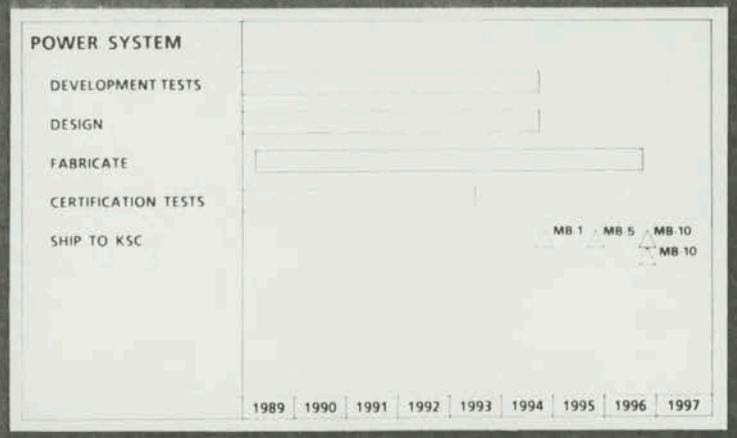

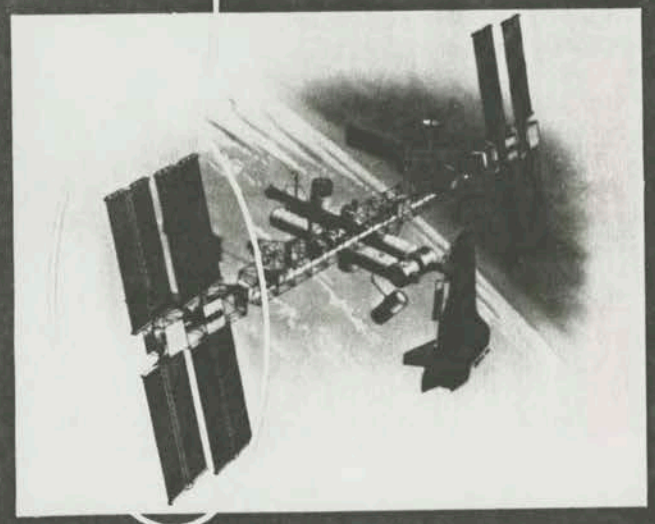

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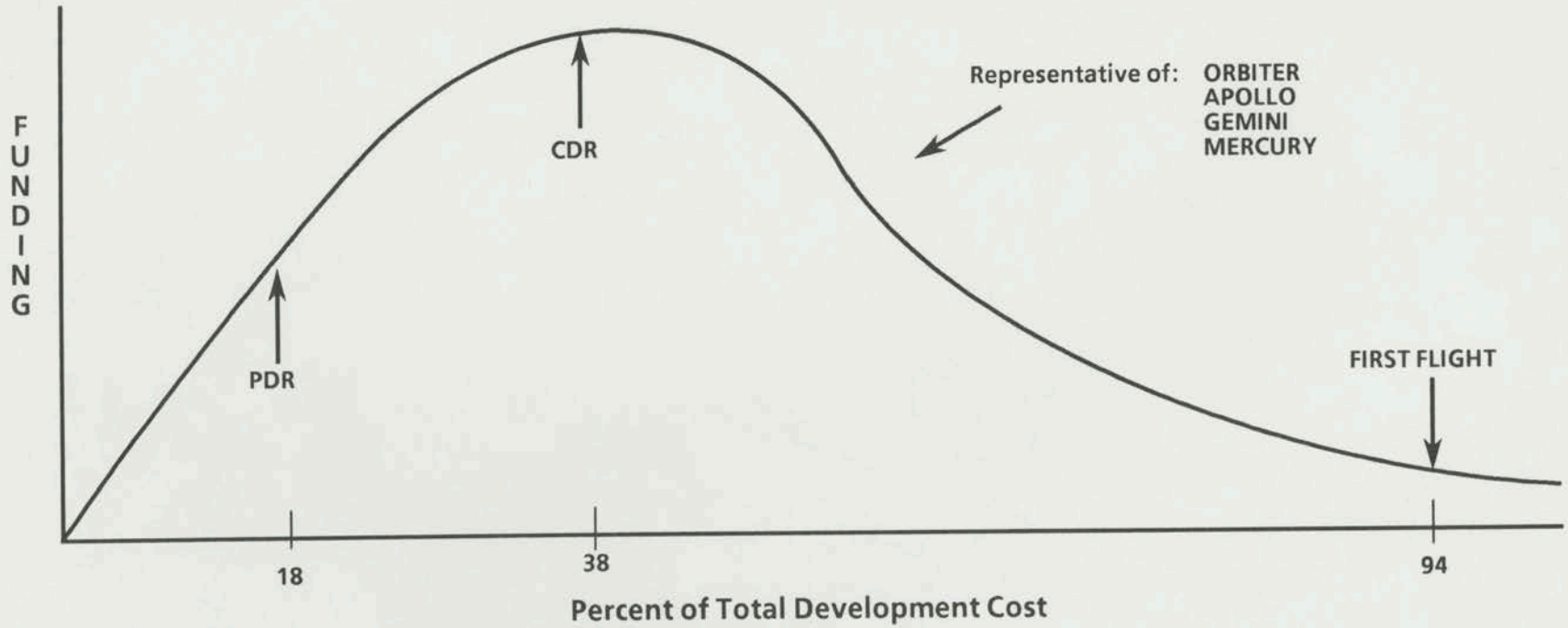
DEVELOPMENT RESOURCE REQUIREMENTS



			PDR		CDR			FEL
Space Station	1988	1989	1990	1991	1992	1993	1994	1995
$RY(B)	0.4	.8	2.0	2.9	3.2	3.1	3.0	2.3
Cum Percent spent through Milestone:			16%		42%			88%

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GEOGRAPHICAL DISTRIBUTION OF AEROSPACE CONTRACTOR JOBS SPACE STATION FREEDOM DEVELOPMENT PROGRAM (FY 1990 BUDGET REQUEST)

STATE	FY1989	FY1990	(PEAK) FY1992
ALABAMA	2,200	4,800	8,600
CALIFORNIA	3,500	10,300	13,800
COLORADO	200	300	700
CONNECTICUT	200	400	700
FLORIDA	700	2,200	3,100
MARYLAND	600	700	1,100
NEW JERSEY	600	900	1,100
NEW YORK	200	1,100	2,000
OHIO	400	600	900
PENNSYLVANIA	400	1,000	1,900
RHODE ISLAND	200	500	600
TEXAS	2,800	5,700	8,900
VIRGINIA	1,900	2,100	2,300
WASHINGTON	200	400	800
OTHER	400	800	1,200
TOTALS	14,500	31,800	47,700

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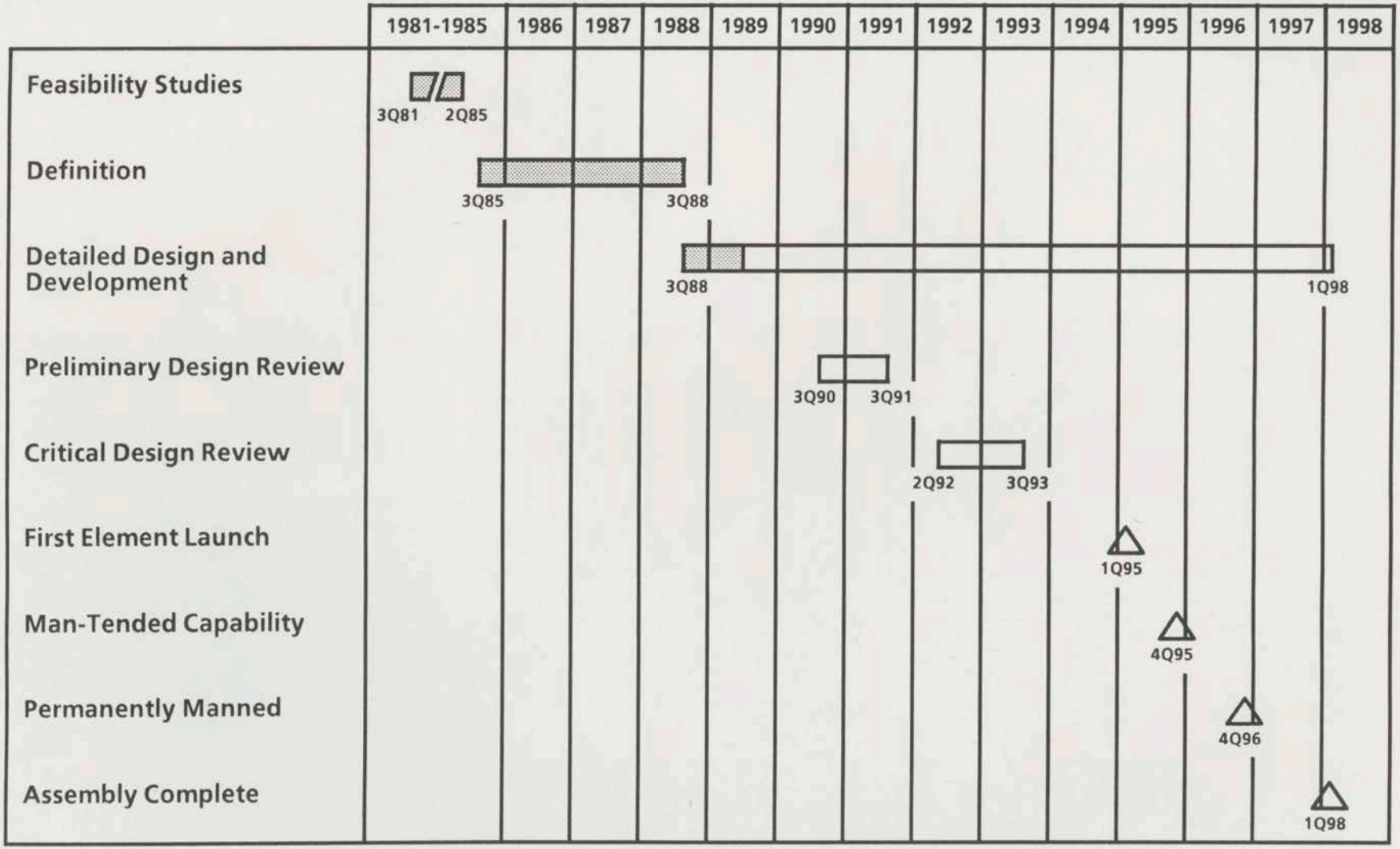
SELECTED SPACE STATION PROGRAM MILESTONES



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2/7/89

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