

NASA

National Aeronautics and
Space Administration

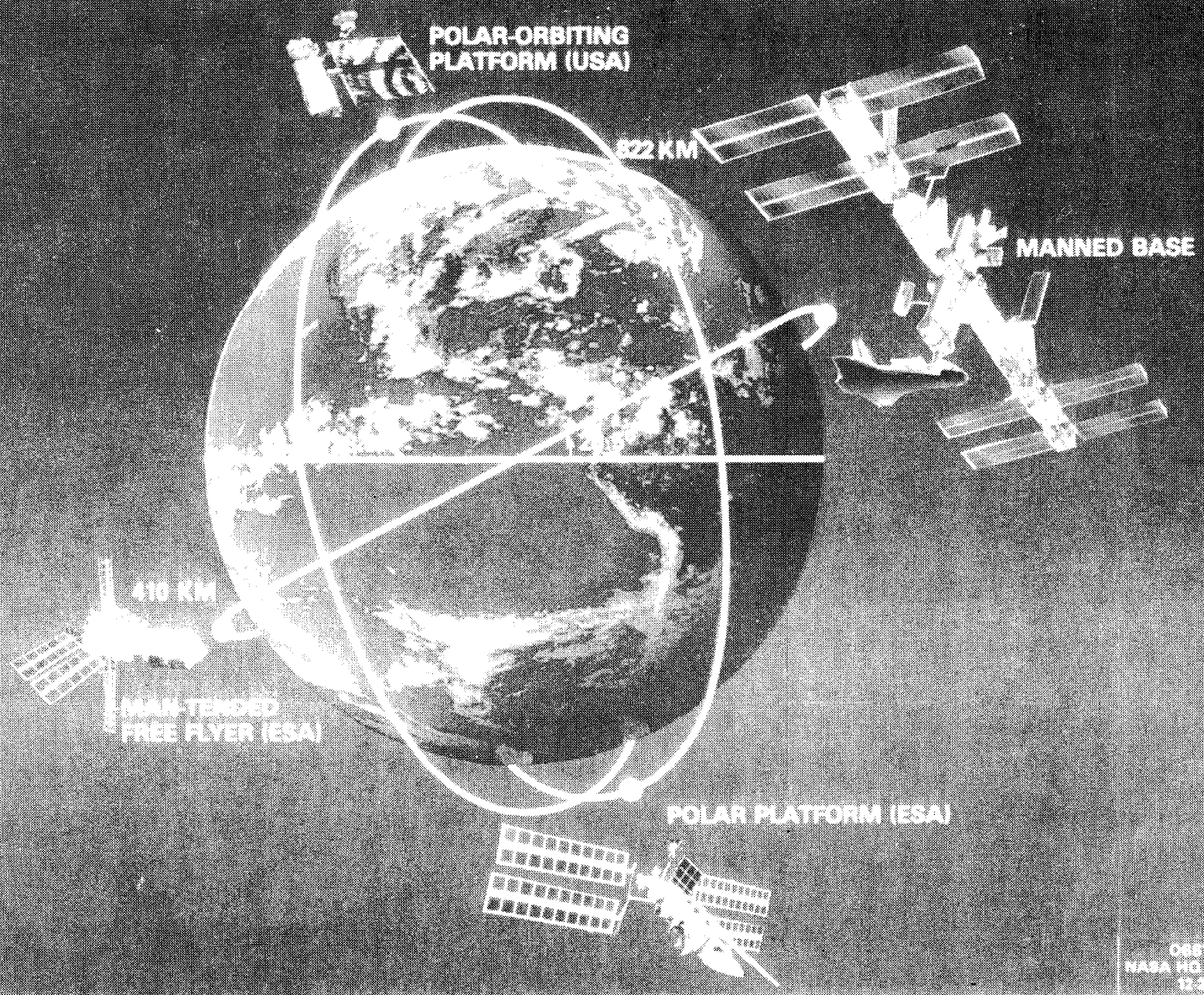


SPACE STATION ADVISORY COMMITTEE

WILLIAM P. RANEY
Office of Space Station

JUNE 29, 1989

INTERNATIONAL SPACE STATION COMPLEX



OSSTT 15
NASA HQ SF28-47613
12-22-88

SPACE STATION FREEDOM

ESA

ELEMENTS:

- PRESSURIZED LABORATORY MODULE
- POLAR PLATFORM
- MANNED-TENDED FREE FLYER (MTFF)

JAPAN

ELEMENTS:

- PRESSURIZED LABORATORY MODULE & EXPOSED FACILITY
- EXPERIMENT LOGISTICS MODULE

NASA/GODDARD (Maryland)

ELEMENTS:

- POLAR PLATFORM
- ATTACHED PAYLOAD ACCOM. (2)
- TELEROBOTIC SERVICER

NASA/JOHNSON (Texas)

ELEMENTS:

- TRUSS
- MOBILE TRANSPORTER (PHASE I)
- AIRLOCKS
- NODES (PRESSURE SHELL - MSFC)

SYSTEMS:

- EXTERNAL THERMAL CONTROL
- EVA
- DATA MANAGEMENT
- COMMUNICATIONS & TRACKING
- GUIDANCE, NAVIGATION & CONTROL
- PROPULSION (THRUSTER TD BY MSFC)
- NSTS/SS ATTACHMENT SYSTEMS

CANADA

ELEMENTS:

- MOBILE SERVICING CENTER (PHASE I)

NASA/MARSHALL (Alabama)

ELEMENTS:

- PRESSURE SHELLS FOR NODES
- LABORATORY MODULE
- HABITATION MODULE (OUTFITTING TD BY JSC)
- LOGISTICS MODULE (PRESS & UNPRESS)

SYSTEMS:

- ECLSS
- INTERNAL THERMAL CONTROL
- INTERNAL AUDIO & VIDEO

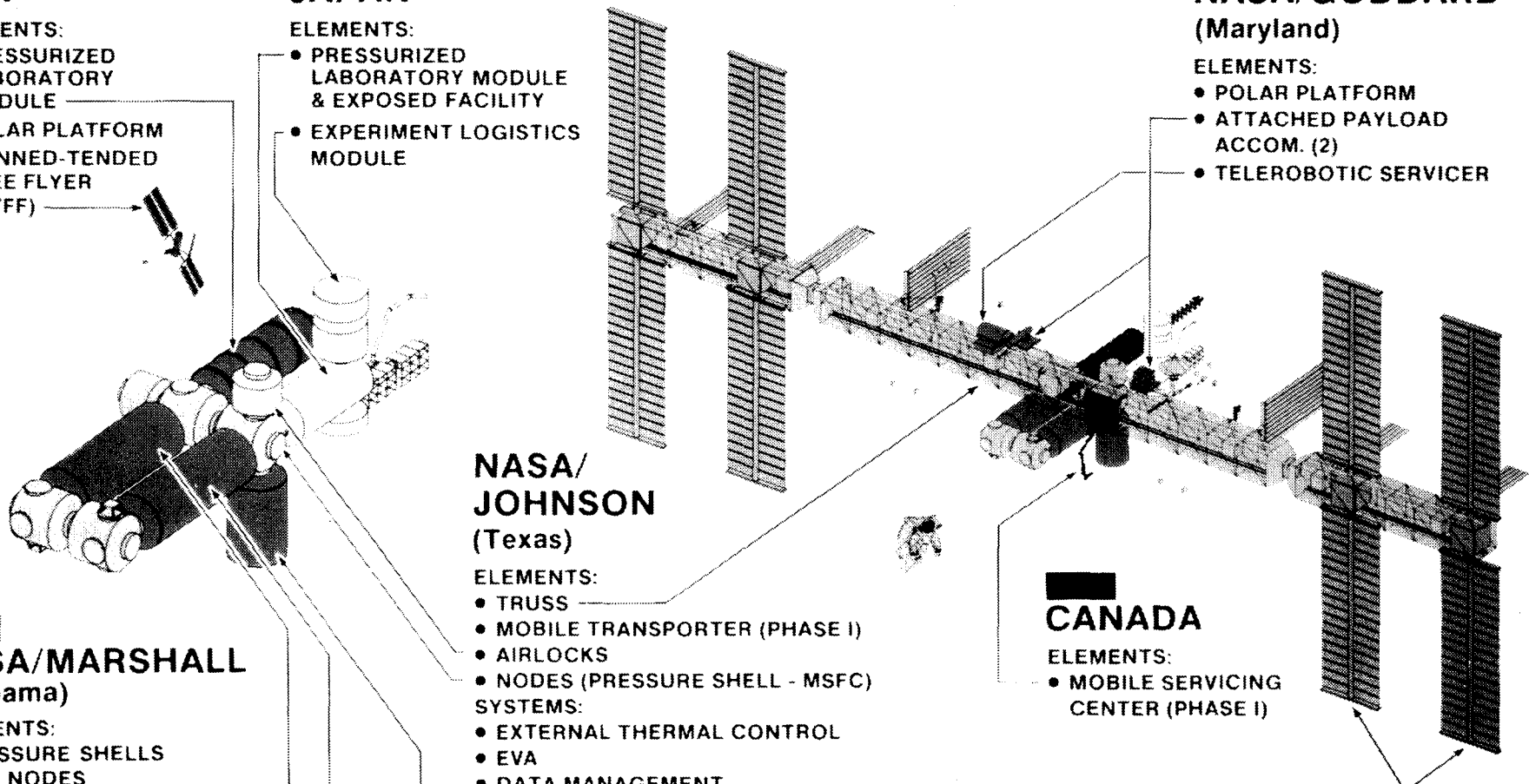
NASA/LEWIS (Ohio)

ELEMENTS:

- POWER MODULES - PV

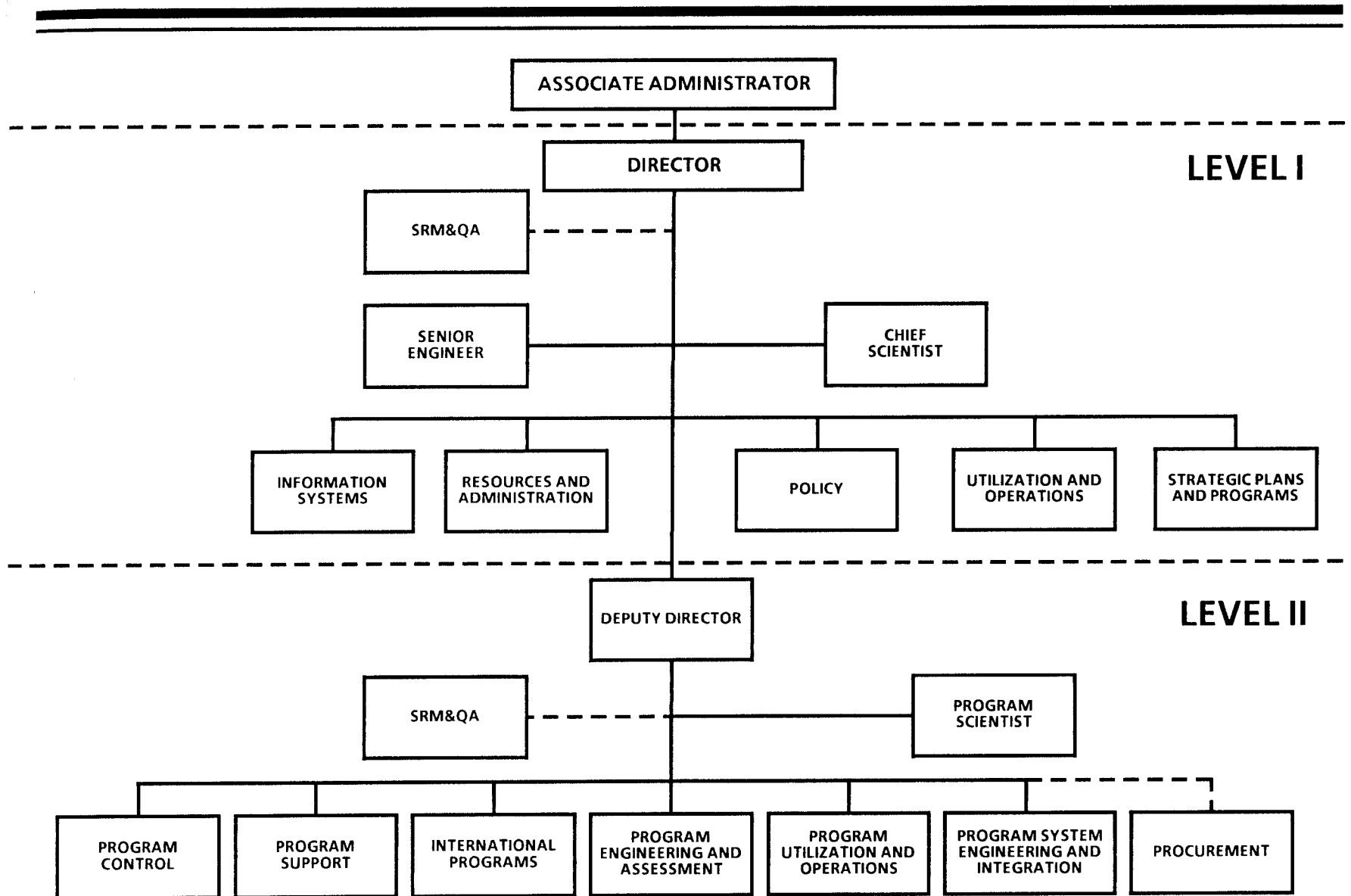
SYSTEM:

- ELECTRICAL POWER DISTRIBUTION

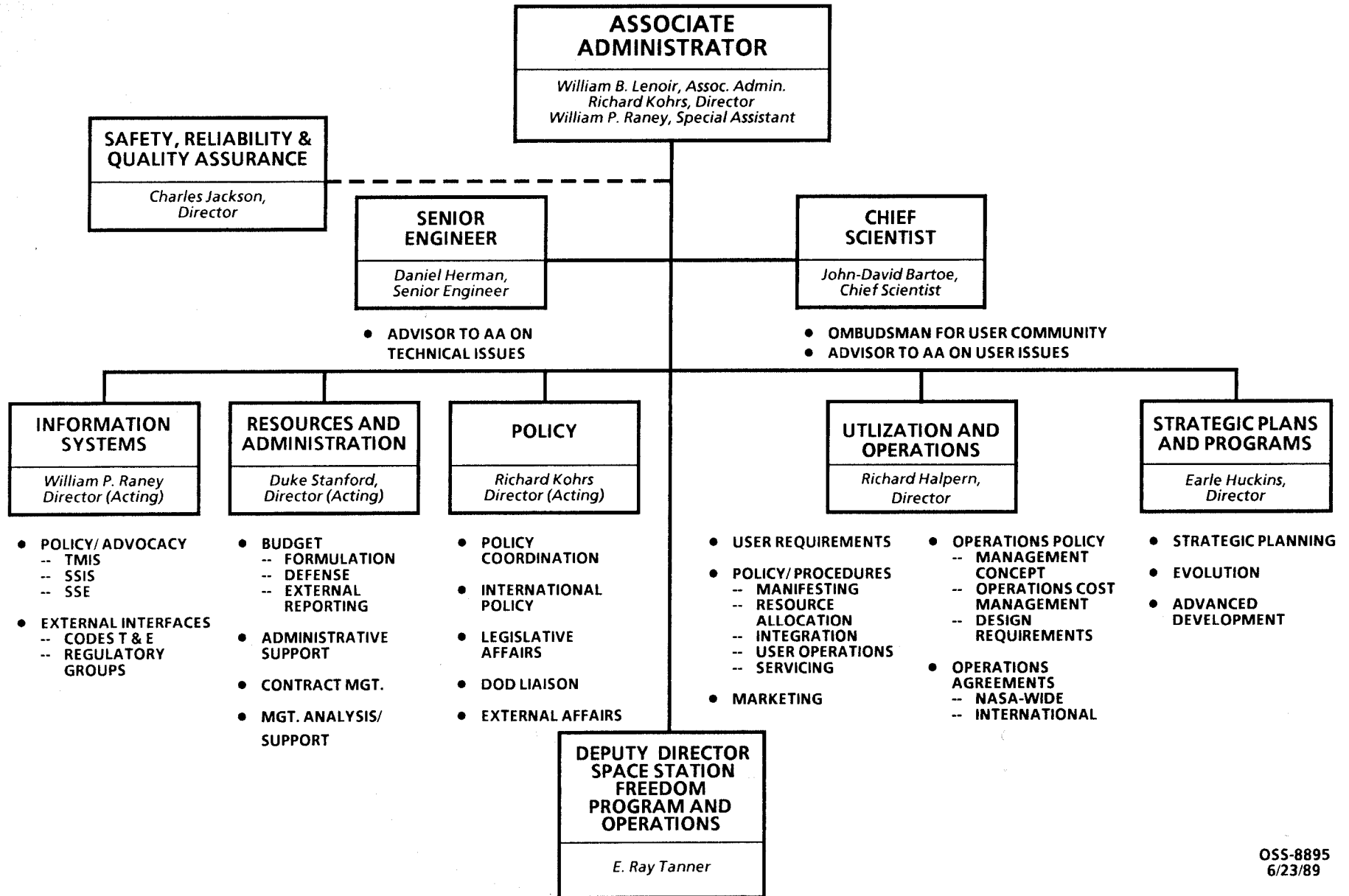




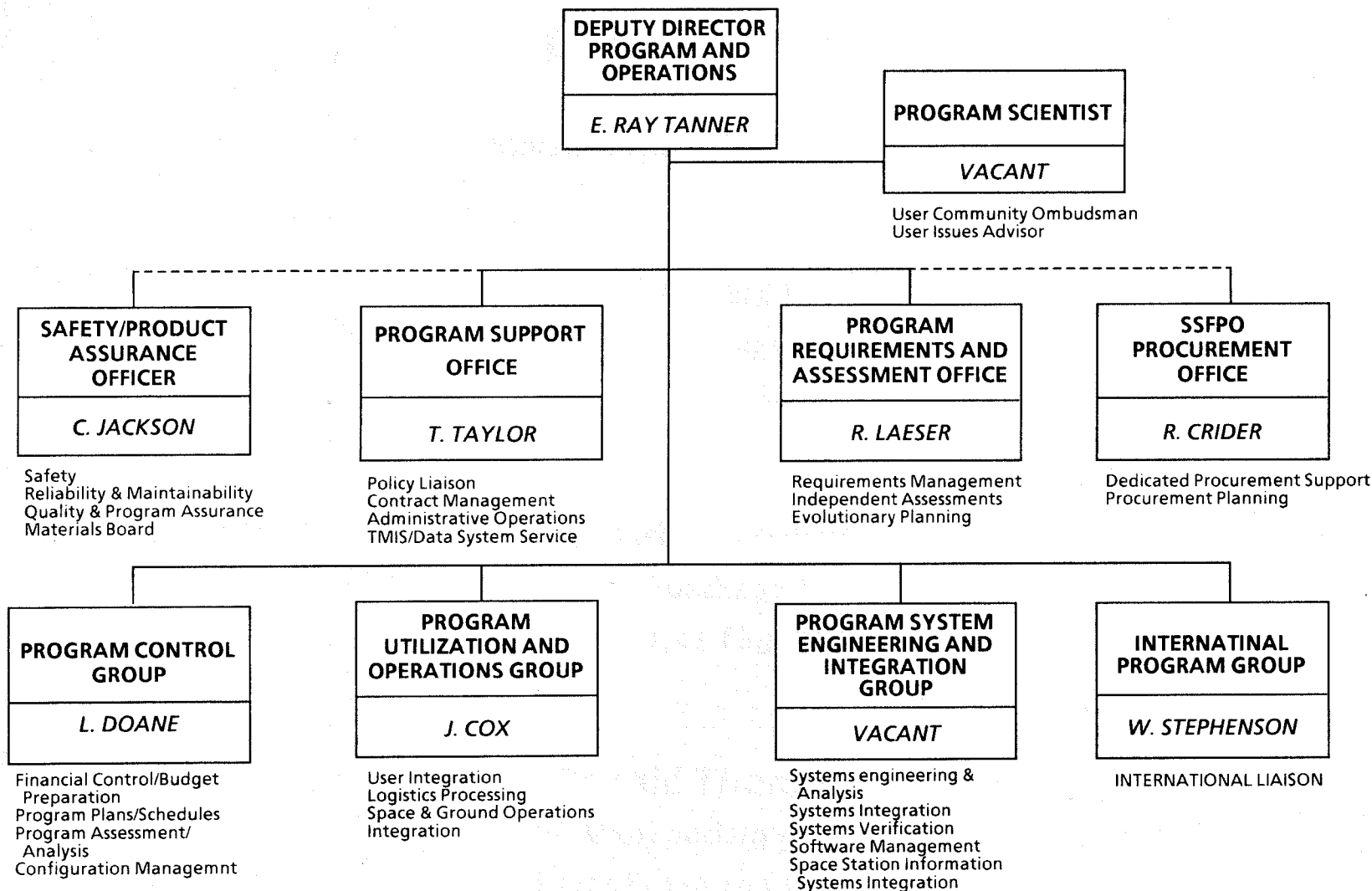
SPACE STATION



OFFICE OF THE ASSOCIATE ADMINISTRATOR FOR SPACE STATION



SPACE STATION FREEDOM LEVEL II



SPACE STATION FREEDOM WORKPACKAGE PROJECT MANAGERS

George Hopson

Workpackage 1

Marshall Space Flight Center

John Aaron

Workpackage 2

Johnson Space Center

Ronald Browning

Workpackage 3

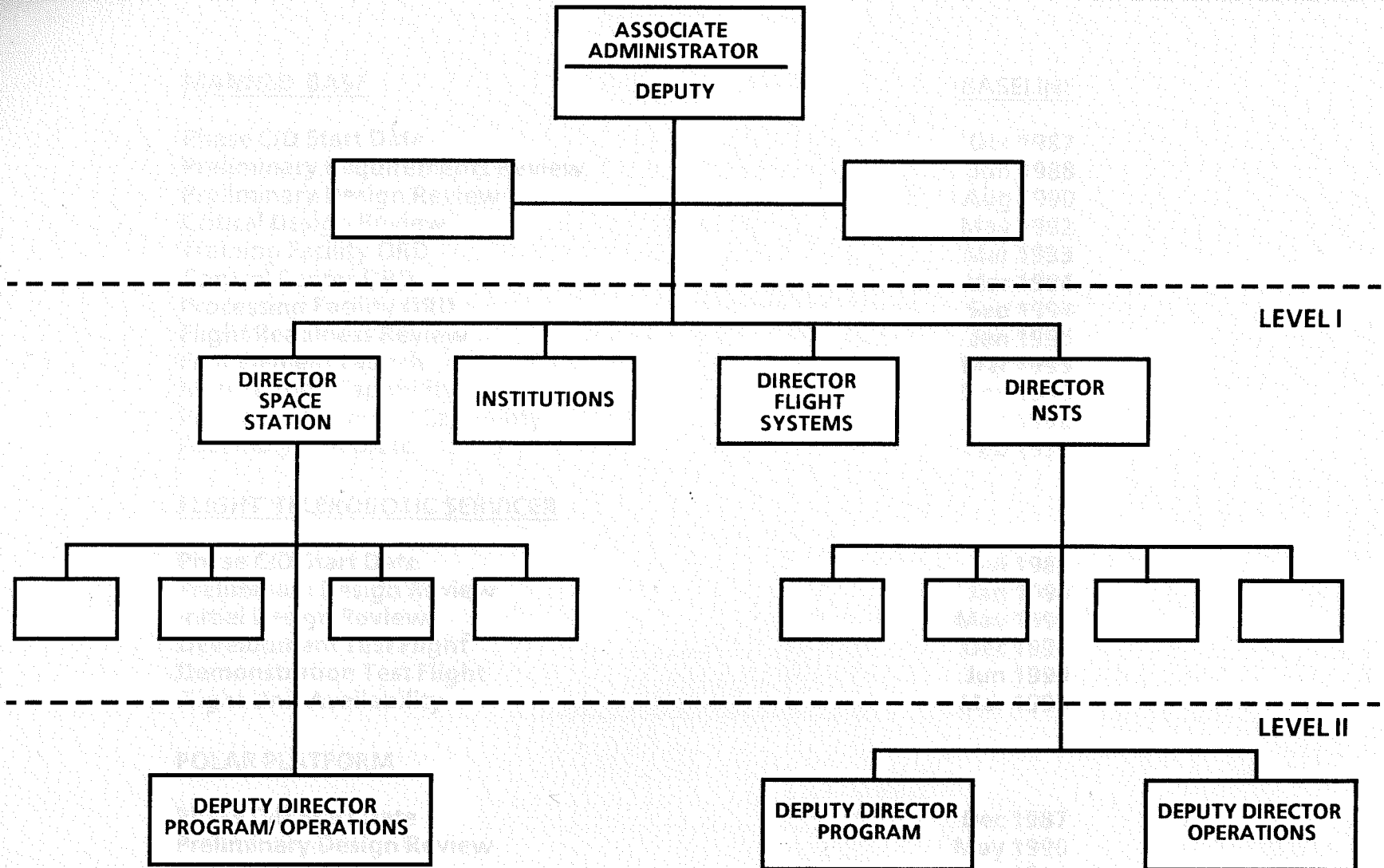
Goddard Space Flight Center

Ronald Thomas

Workpackage 4

Lewis Research Center

OFFICE OF SPACE FLIGHT (M) AND OFFICE OF SPACE STATION (S) MERGER (PRELIMINARY)



SPACE STATION FREEDOM PROGRAM PROGRAM SCHEDULE



MANNED BASE

Phase C/D Start Date
 Preliminary Requirements Review
 Preliminary Design Review
 Critical Design Review
 Training Facility ORD
 Control Center ORD
 Processing Facility ORD
 Flight Readiness Review
 First Element Launch
 Man Tended Capability
 Permanent Manned Capability
 Assembly Complete

BASELINE

Dec 1987
 Jun 1988
 Aug 1990
 May 1992
 Mar 1993
 Mar 1994
 Sep 1994
 Jan 1995
 Mar 1995
 Nov 1995
 Dec 1996
 Feb 1998

FLIGHT TELEROBOTIC SERVICER

Phase C/D Start Date
 Preliminary Design Review
 Initial Design Review
 Development Test Flight
 Demonstration Test Flight
 Flight Unit Availability

Jul 1989
 Jan 1990
 May 1991
 Dec 1991
 Jun 1993
 Mar 1995

POLAR PLATFORM

Phase C/D Start Date
 Preliminary Design Review
 Critical Design Review
 VAFB Launch

Dec 1987
 May 1990
 Nov 1991
 Oct 1996

SPACE STATION FREEDOM FUNDING REQUIREMENTS FY90 BUDGET FEL 1ST QUARTER CY 1995

(RY \$M)

	<u>87 AND PRIOR</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>	<u>96</u>	<u>TOTAL</u>
DEVELOPMENT	147	367	842	1970	2855	3242	3074	3074	2302	1167	*19013
FLIGHT TELEROBOTICS SYSTEM	30	21	46	15	10	10	11	11	55	50	**259
TRANSITION DEFINITION	0	4	12	25	32	42	44	46	49	51	Cont.
OPERATIONS	0	0	0	25	80	199	546	794	1134	1225	Cont.
ORBITAL DEBRIS RADAR	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>
TOTAL	177	392	900	2050	2981	3494	3675	3898	3540	2493	Cont.
DEFINITION	595.8										595.8

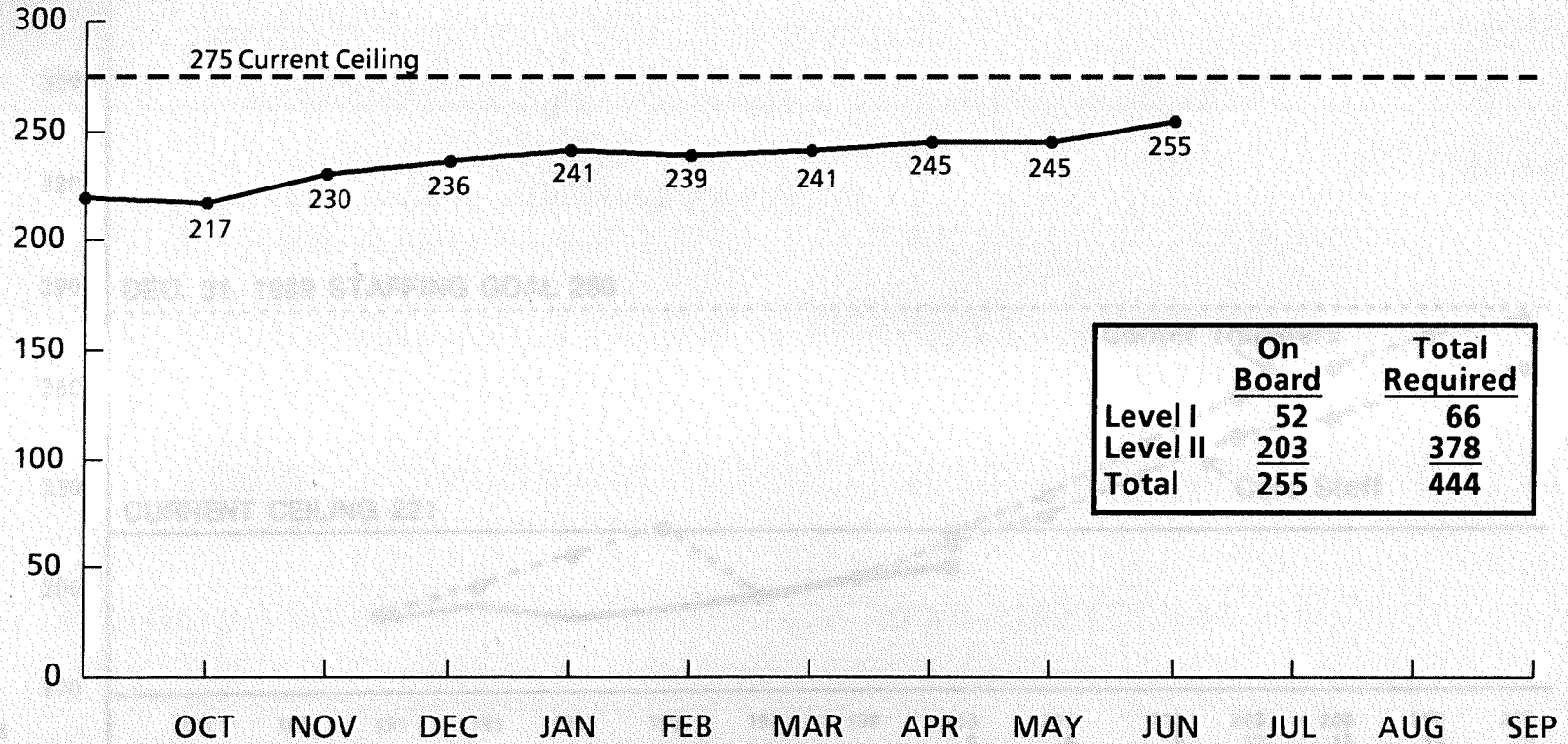
* EQUATES TO \$13B IN FY 1984 DOLLARS

** ASSUMES COMMERCIALIZATION

OFFICE OF SPACE STATION STAFFING STATUS AS OF JUNE 27, 1989



STAFFING
LEVEL

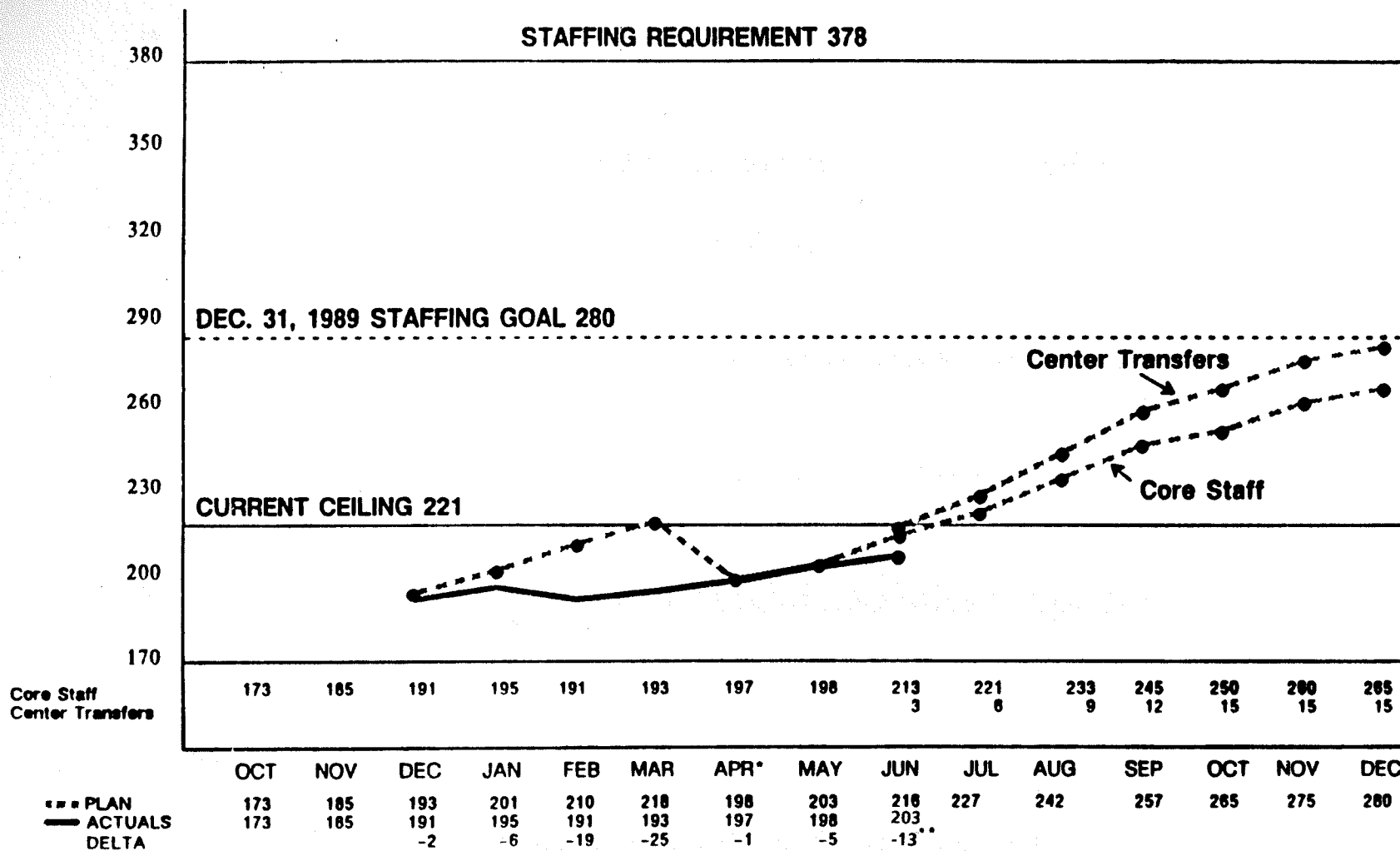


	<u>On Board</u>	<u>Total Required</u>
Level I	52	66
Level II	203	378
Total	255	444

----- CURRENT CEILING
 _____ ACTUAL



LEVEL II STAFFING



** On board as of 6/27/89
 * Plan Revised 3/30/89

SPACE STATION FREEDOM COMMERCIAL ACTIVITIES



- **Administration Initiatives**
 - **FTS**
 - NASA and OMB agreed to remove; not a viable candidate
 - **Space Station Docking Systems**
 - Under Agency review
 - **Neutral Buoyancy Facility at Johnson Space Center**
 - Draft RFP; two responses
 - **Space Station Processing Facility at Kennedy Space Center**
 - Draft RFP; sixteen responses
- **Boeing Space Station Commercial Logistics Proposal**
 - Under Agency review
- **Memoranda of Understanding signed with:**
 - **Corabi International - telemedicine services**
 - **Coca Cola Company - liquid dispensing and monitoring**



INTERNATIONAL STATUS

Canada

- Mobile Servicing System Phase 1 Preliminary Design Review completed in March 1989. NASA supported all phases of review, including pre-board and final board activities

European Space Agency (ESA)

- Response from industry on Phase C/D RFQ's expected in late summer
- Expect to award Phase C/D contracts in the fall

Japan

- Diet consideration of IGA underway
- NASDA Flight Element Preliminary Requirements Review (PRR) (JPDRD Sections 3&6) underway in Tokyo (June 15 through June 28)

UPCOMING INTERNATIONAL PROGRAM MEETINGS



Canada

- NASA/CSA Joint Program Review planned July 11-12 in Toronto
- NASA/CSA Program Coordination Committee scheduled July 13-14 in Ottawa (AA/PD participation)

European Space Agency (ESA)

- NASA/ESA Program Coordination Committee planned for late August/early September (AA/PD participation)

Italy

- Joint Long Cycle Pressurized Logistics Module (LCPLM) study team meeting week of June 26 in Rome

PROGRAM ACCOMPLISHMENTS

- Configuration finalized
- Program architecture defined
- Levels I, II, III organizations in place
- International agreements signed
- Prime contracts definitized
- Program Requirements Review completed
- Preliminary design and development work in progress



KEY ITEMS

- **Staffing to perform Level II function**
 - What is the required staffing level
 - How to accomplish function in current environment
- **FY 90 and subsequent year budget**
 - How to replan if budget reduced significantly
- **Accomplishment of PDR's on schedule**
 - Level III PDR's
 - Program PDR
- **Assembly Sequence**
 - Total number of flights required to achieve operational status within NSTS capabilities
 - Number of flights to achieve man tended capabilities
 - Number of flights to achieve permanent manned capability