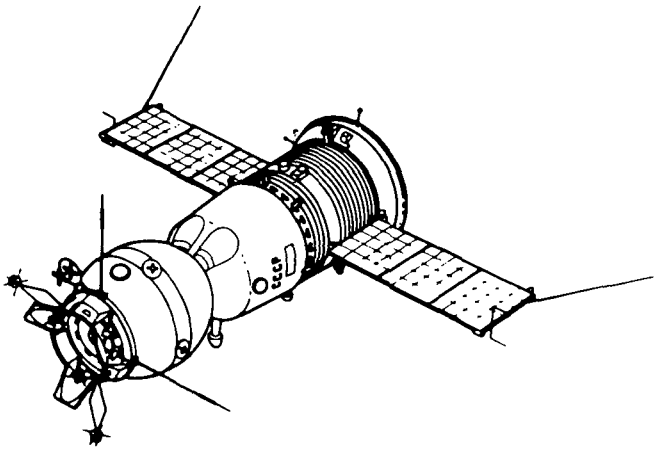
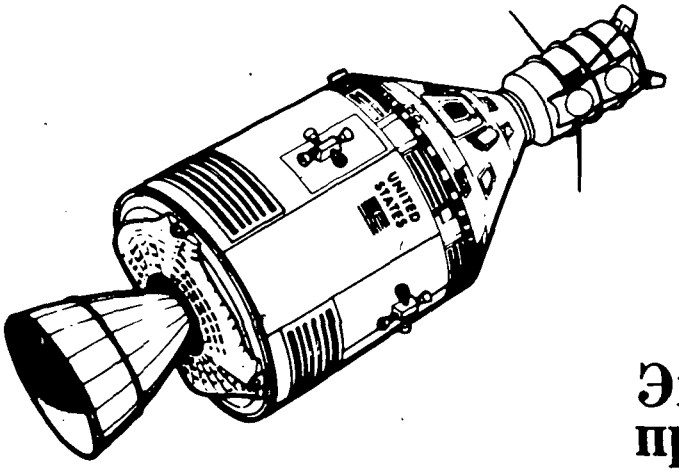
APOLLO SOYUZ TEST PROJECT

USA - USSR

RELEASE NO: 74-196

FACT SHEET





Экспериментальный проект «Союз» - «Аполлон»

(NASA-News-Release-74-196) APOLLO SOYUZ TEST PROJECT. USA-USSR, FACT SHEET (NASA) 48 p CSCL 22A

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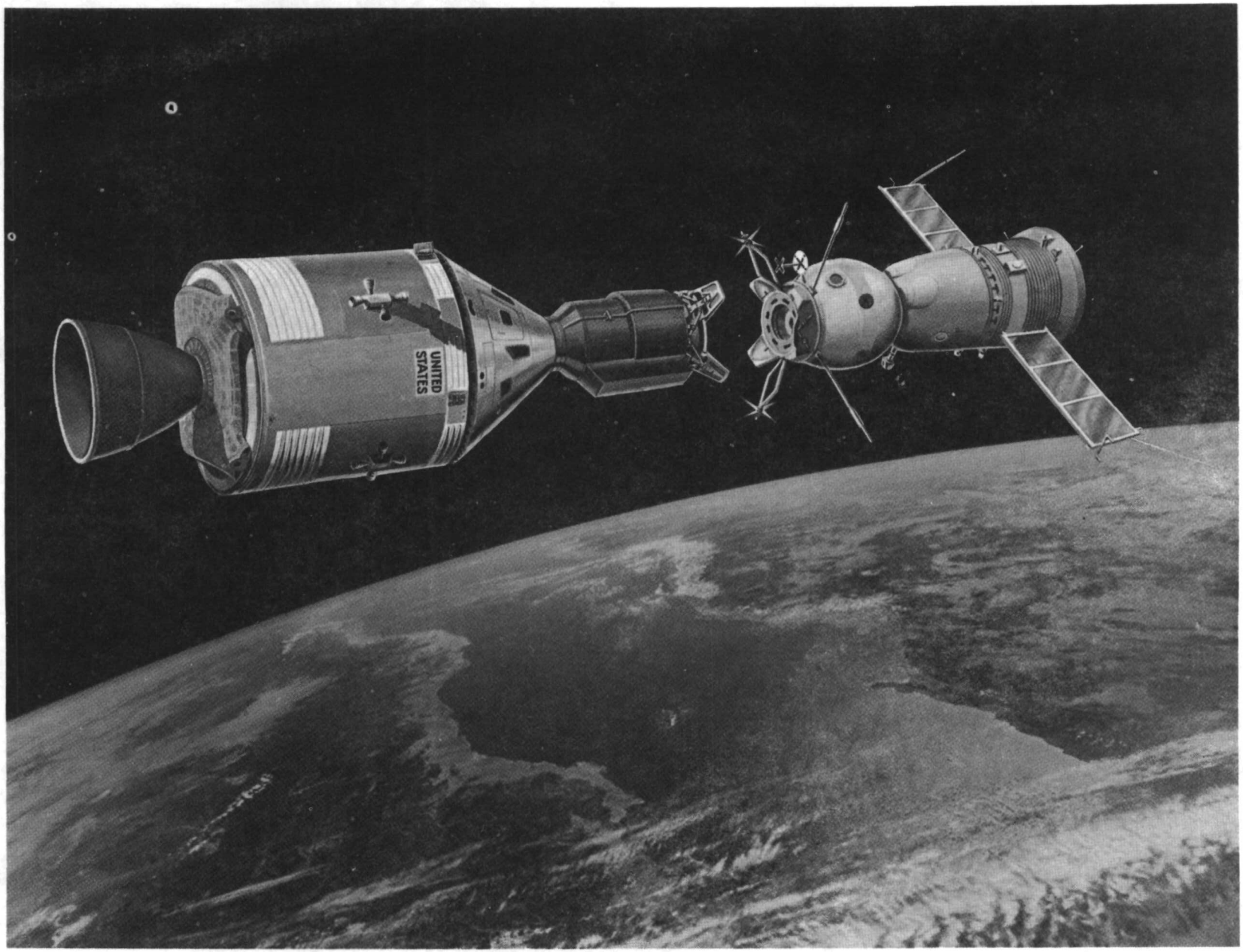
APOLLO SOYUZ TEST PROJECT

The Apollo Soyuz Test Project (ASTP) is a joint endeavor of the United States and the Soviet Union as part of the agreement on cooperation in space which President Nixon and Chairman Kosygin signed in Moscow in May of 1972. Both countries have agreed to develop compatible rendezvous and docking systems which will provide a basis for docking and rescue on future spacecraft of both nations, and to conduct a joint experimental mission in mid-1975 to rendezvous and dock a manned Apollo spacecraft with a manned Soyuz-type spacecraft to test these docking systems in orbit. Each nation is separately developing docking systems based on a mutually agreeable single set of interface design specifications.

The major new U.S. program elements are the Docking Module and docking system necessary to achieve compatibility of rendezvous and docking systems with the USSR-developed hardware to be used on a Soyuz spacecraft. The Docking Module and system together with an Apollo Command and Service Module (CSM) will be launched on a Saturn IB launch vehicle. The Docking Module and the docking system will be stowed in the spacecraft launch vehicle adapter and extracted by the CSM while in Earth orbit in a manner similar to that used with the Lunar Module on an Apollo lunar mission.

The ASTP mission will include testing a compatible rendezvous system in orbit; testing the compatible docking systems; verifying techniques for transfer of astronauts and cosmonauts; conducting experiments while docked and undocked; developing experience for the conduct of potential joint flights by U.S. and USSR spacecraft, including, in case of necessity, rendering aid in emergency situations.

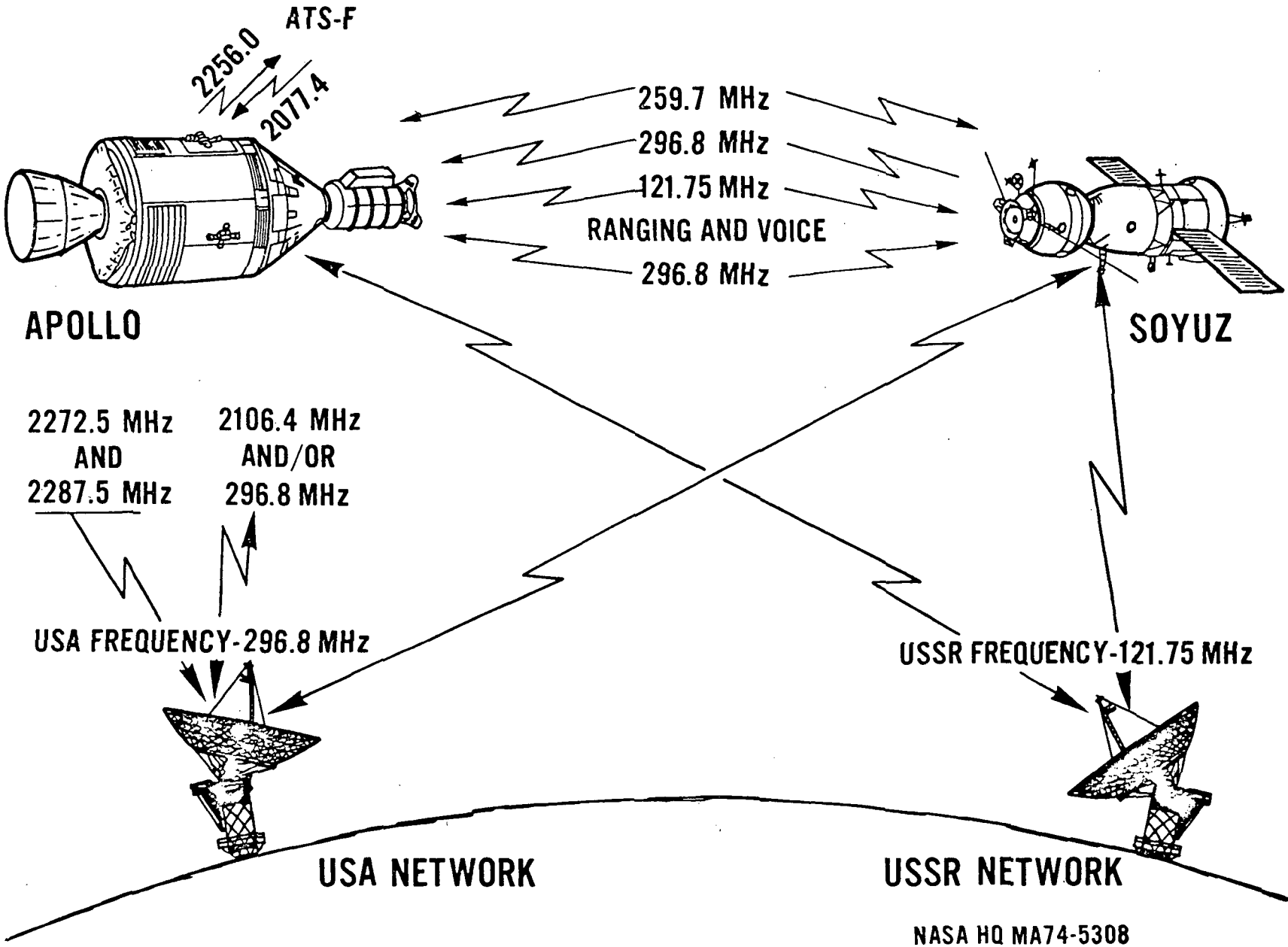
Joint US/USSR working groups have been meeting on a scheduled basis to review and agree on the technical and operational aspects of the joint project.



APOLLO SOYUZ TEST PROJECT

ЭКСПЕРИМЕНТАЛЬНЫЙ ПОЛЕТ "АПОЛЛОН"/"СОЮЗ"

APOLLO/SOYUZ - TEST MISSION RADIO COMMUNICATIONS LINKS



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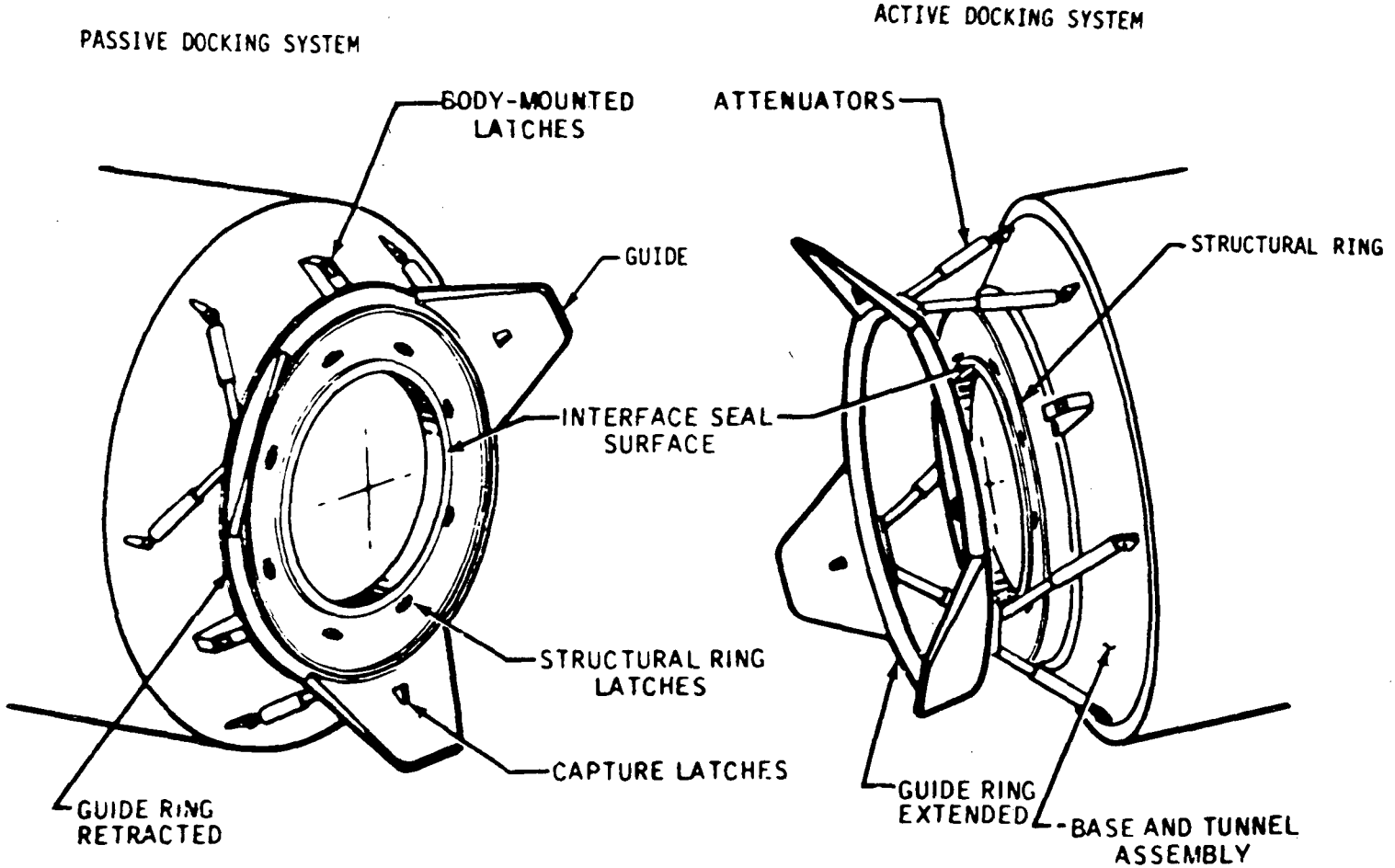
ASTP
NEW COMPATIBLE DOCKING SYSTEM



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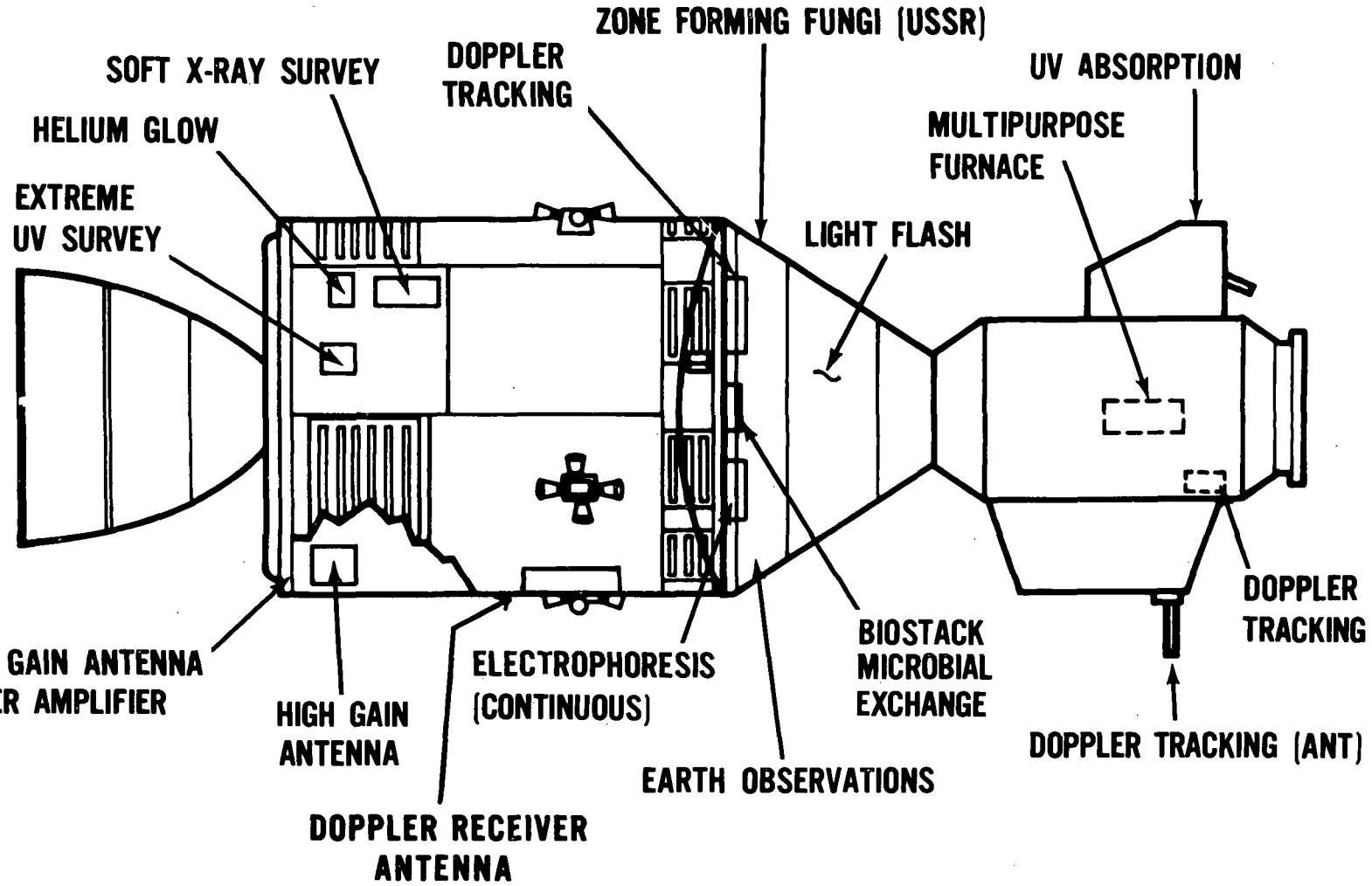
EXPERIMENTS AND ATS-F LOCATION SCHEMATIC



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Command and Service Module

The Apollo spacecraft will be a modified version of the Command and Service Module (CSM) flown during the first several lunar landing missions. Major CSM modifications include provisions for experiments, additional propellant tanks for the reaction control system and the addition of controls and displays required for the proper operation of the Docking Module and docking system.

Docking Module and Docking System

The Docking Module is cylindrical, approximately 1.5 meters (about 5 feet) in diameter and 3 meters (about 10 feet) in length. It will serve as an airlock for the internal transfer of crewmen between the different atmospheres of the Apollo and Soyuz spacecraft. The Docking Module will be equipped with radio and TV communications, antennas, stored gases, heaters, and the displays and controls necessary for transfer operations.

The Docking Module is designed to handle two crewmen simultaneously. Hatches having controls on both sides will be installed at each end of the module. A universal docking system will be located at the Soyuz end of the module and will be capable of functioning with similar components on the Soyuz-type spacecraft. The Apollo end of the Docking Module will use the probe and drogue docking system used during the Apollo lunar program to permit docking between the Command Module and Lunar Module.

In orbit, Apollo's atmosphere is pure oxygen at a pressure of five pounds per square inch. Soyuz uses a mixture of nitrogen and oxygen at an Earth sea level pressure of 14.7 pounds per square inch. (Later NASA spacecraft such as the Space Shuttle will use nitrogen-oxygen at sea level pressure.)

While the spacecraft are docked, the Soyuz pressure will be reduced from its normal 14.7 pounds per square inch to 10 pounds. This will make it possible for crewmen to transfer from Soyuz to Apollo without taking time in the airlock to breathe pure oxygen and force nitrogen from their blood. Apollo pressure will remain at five pounds.

The Docking Module design emphasized low cost construction made possible by the launch weight margin inherent in the use of the Saturn IB launch vehicle. Thick aluminum plate was used rather than honeycomb, resulting in a considerable reduction in structural cost.

The Soviet Soyuz will also be modified. One important modification will be the use of a compatible rendezvous and docking system which NASA and Soviet engineers are designing. This system will also be employed on the end of the Docking Module with which Soyuz will dock.

Soyuz has been the primary Soviet manned spacecraft since its introduction in 1967. It consists of three basic modules:

- Orbital module, located at the forward end, used by the crew for work and rest during orbit. It is 3.35 meters (7.3 feet) in diameter, 2.65 meters (8.7 feet) long, and weighs about 1,224 kg (2,700 pounds).

- Descent module, with main controls and crew couches, used by crew during launch, descent, and landing. It weighs about 2,802 kg (6,200 pounds) and is 2.2 meters (7.2 feet) long.

- Instrument module, at rear, with subsystems required for power, communications, propulsion, and other functions. It weighs 2,654 kg (5,850 pounds) and is 2.3 meters (7.5 feet) long.

Experiments

During the ASTP mission, the crew will conduct important new science, applications, technology and medical experiments.

The science experiments selected for the mission include astronomical observations in a region of the electromagnetic spectrum which has not been systematically surveyed by satellite instruments. The astronomical regions should significantly advance understanding of some of the spectacular new classes of objects discovered in the last few years (such as quasars, pulsars, and X-ray sources), and also provide important information on the nature of the interstellar medium. In addition, atmospheric observations will be conducted using a new technique for measuring atmospheric constituents which are too chemically reactive to measure directly with a mass spectrometer. This is a joint experiment with the USSR and will be accomplished by sending an optical signal from the CSM to a reflector on the Soyuz.

The signal will be bounced back and scanned in the Apollo spacecraft to study the effects of the sun on atomic oxygen and nitrogen at orbital altitudes. These observations are important for a better understanding of the chemistry and the energy balance of the upper atmosphere. Data from these experiments could lead to a better understanding of the evolution of stars, of the emission processes which could lead to new methods of energy generation, and of the interaction of the upper and lower atmosphere where weather is generated.

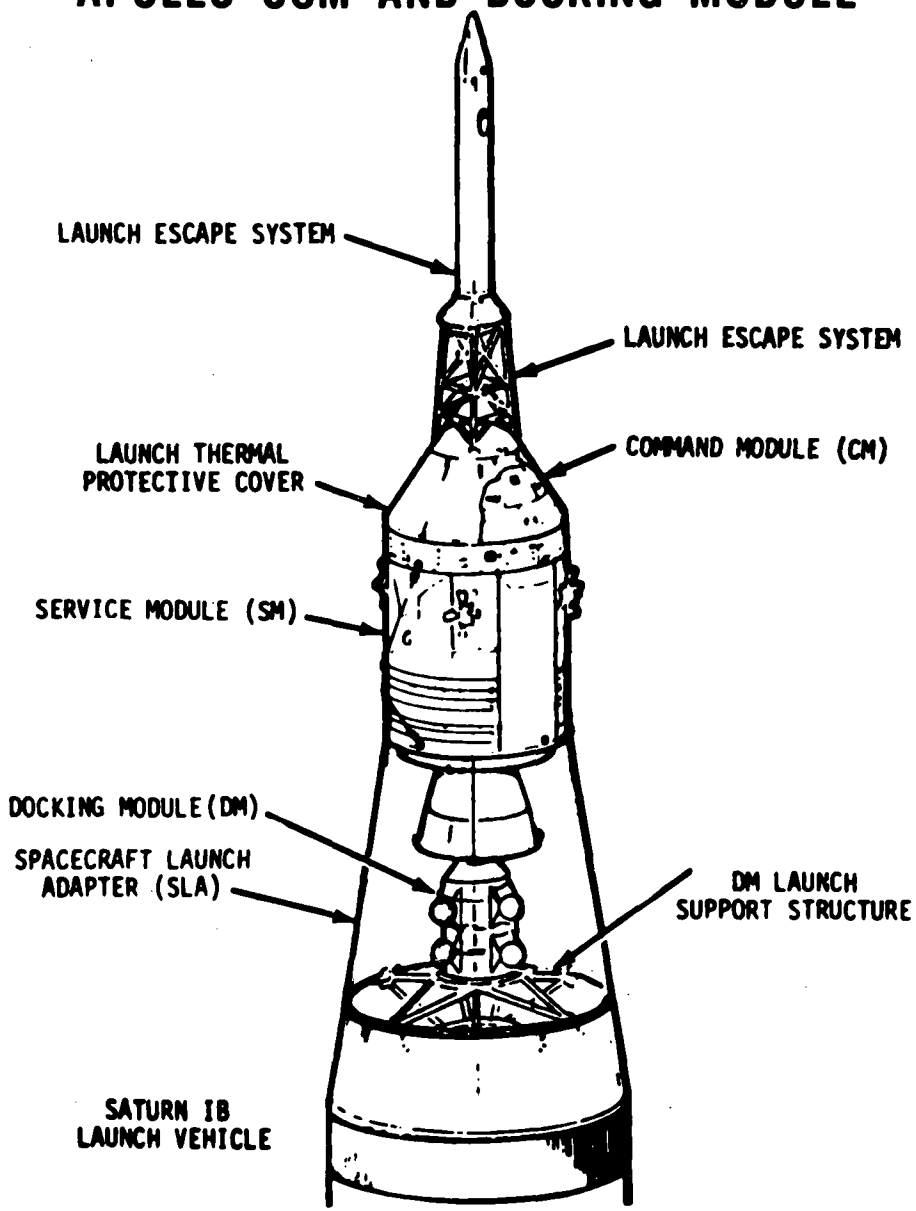
The experiments in the field of applications and technology will investigate the space processing of new material samples in zero gravity utilizing an improved multipurpose furnace, and make earth observations to determine detailed gravity features and geological structures which could indicate the presence of oil and mineral deposits. Also included is an experiment in electrophoresis processing. An electric field is used to separate living cells and other biological materials from a flowing medium without decreasing their activity. It is expected to determine whether the near zero gravity conditions enhance a similar process now involved in work by the Max Planck Institute in Germany.

Successful demonstration by ASTP could lead to further development of space electrophoresis in Shuttle missions as a tool for medical research and therapy and contribute to such fields as immunology and cancer research.

The life sciences experiments include extension of work done in the Apollo and Skylab programs, such as additional study of the phenomena of the cosmic light flashes observed by flight crews and studies of the effects of zero gravity and radiation on organisms. Studies will also be conducted on pre and post flight astronaut blood samples to determine, among other things, immunity retention. There are also joint US/USSR life science experiments planned, such as an experiment designed to determine the degree of transfer of micro-organism and microflora between crew members and the two spacecraft involved in this mission. This experiment is designed to take advantage of a mission involving two spacecraft launched from widely separated ground environments.

APOLLO/SOYUZ TEST PROJECT

LAUNCH CONFIGURATION FOR APOLLO CSM AND DOCKING MODULE



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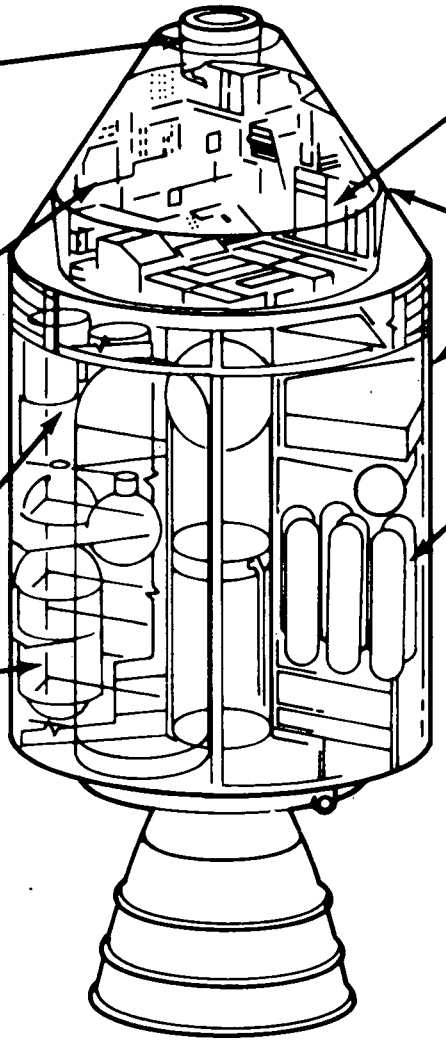
ASTP MAJOR APOLLO MODIFICATIONS

- MODIFIED UMBILICAL TO ACCOMODATE DOCKING MODULE FUNCTIONS
- ADDED TELEVISION CAMERA & RECORDER FOR COVERAGE OF JOINT ACTIVITIES
- ADDED HEATERS AND INSULATION TO PROPELLANT SYSTEMS FOR SOLAR INERTIAL ATTITUDE
- DELETED UNUSED MAIN PROPELLANT TANKS
- MODIFIED CM STOWAGE



- MODIFIED CONTROLS AND DISPLAYS TO ACCOMODATE NEW EQUIPMENT AND EXPERIMENTS
- ADDED EQUIPMENT FOR COMM. AND TV VIA ATS-F SATELLITE
- ADDED PROPELLANT STORAGE MODULE FOR INCREASED ATTITUDE CONTROL AND BACK-UP DEORBIT CAPABILITY
- ADDED EXPERIMENTS IN CM & SM
- ADDED INTERVEHICULAR INTERCOMM. IN CM
- ADDED VHF-FM AT USSR FREQUENCY IN CM
- DELETED RENDEZVOUS RADAR TRANSPONDER FROM CM

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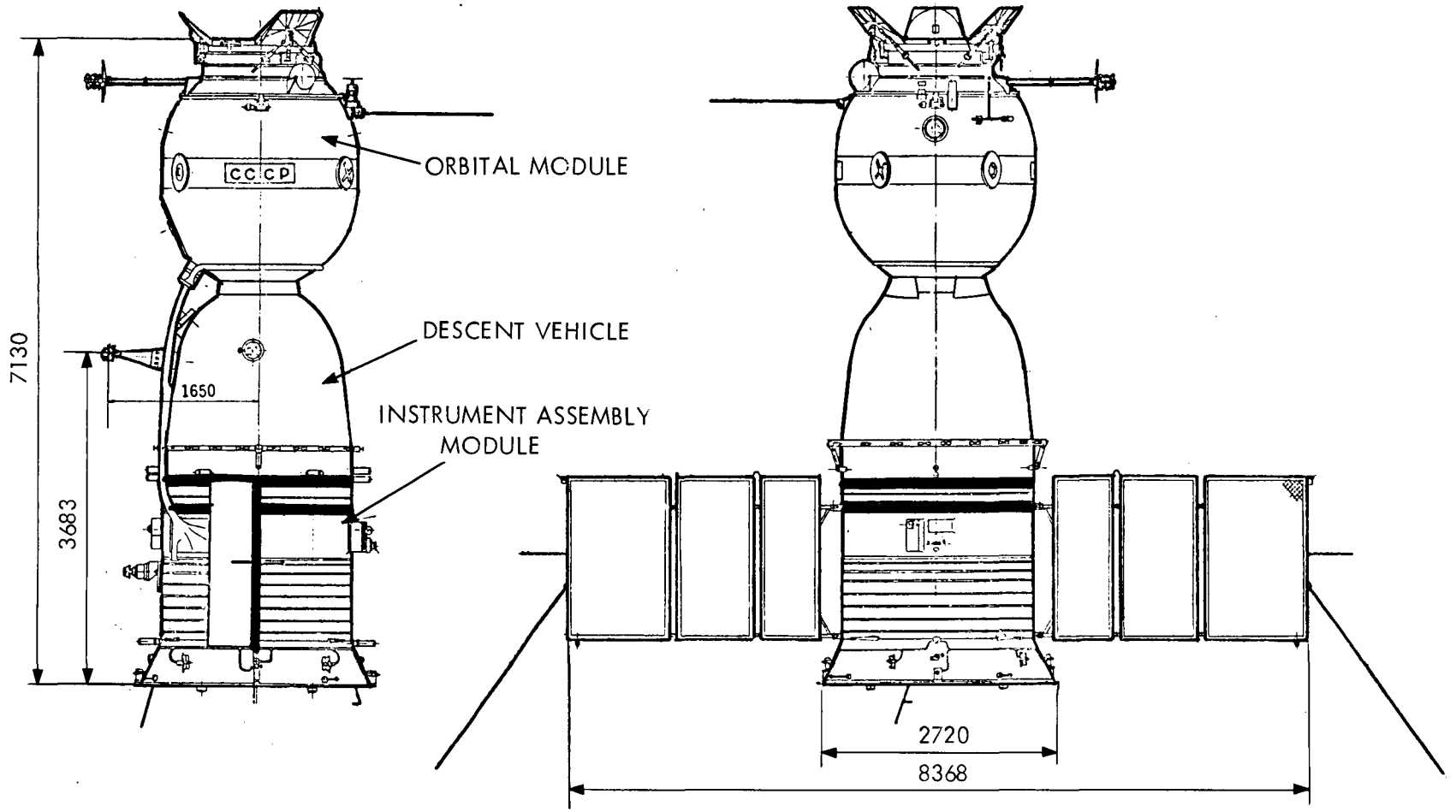
REV. 1-25-74

SOYUZ VEHICLE



NASA HQ MA74-5326
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Launch Vehicle

ASTP will utilize Apollo-Skylab Saturn IB launch vehicle hardware. The Saturn IB, consisting of an S-IB stage, an S-IVB stage, and an instrument unit, will launch the spacecraft from the Kennedy Space Center.

Planned Mission Summary

The Soyuz will be launched from the Baikonur, Kazakhstan launch complex at about 1220 GMT* on July 15, 1975, in a northeasterly direction and is inserted into a 188- by 228-km (117- by 142-statute mile) orbit at an inclination of 51.8°. On the fourth orbit after lift-off the Soyuz will initiate the first of two maneuvers to circularize the orbit at 225 km (140 statute miles). The second maneuver for circularization will occur on the 17th Soyuz orbit.

About seven hours 30 minutes after Soyuz launch (1950 GMT), the Apollo will be launched from the Kennedy Space Center in a northeasterly direction and will be inserted into a 150- by 167-km (83- by 104-statute mile) orbit with an inclination of 51.8°. About 1 hour after Apollo orbit insertion, the Apollo CSM will begin the transposition and docking procedure to extract the Docking Module (DM) from the launch vehicle. The extraction of the DM will be completed by 9 hours 14 minutes Soyuz, Ground Elapsed Time (GET). An evasive maneuver of 1 meter per second (mps) (3.3 feet per second) posigrade to avoid recontact with the launch vehicle will raise apogee to about 167 km (104 statute miles).

The Apollo spacecraft will perform a circularization maneuver at third apogee to establish a controlled Apollo rendezvous maneuver sequence. The rendezvous sequence establishes a standard geometry final approach to the Soyuz spacecraft. The first phasing maneuver (NC1), which occurs at about 13 hours 12 minutes Soyuz GET, is an in-plane, horizontal maneuver designed to adjust the rate of change of the phase angle by changing the orbital period. If necessary, a plane change maneuver (NPC) will be performed after NC1 and before the second phasing maneuver to place the Apollo in plane with the Soyuz at rendezvous. The plane change maneuver will complete the first day of maneuver activities for each crew.

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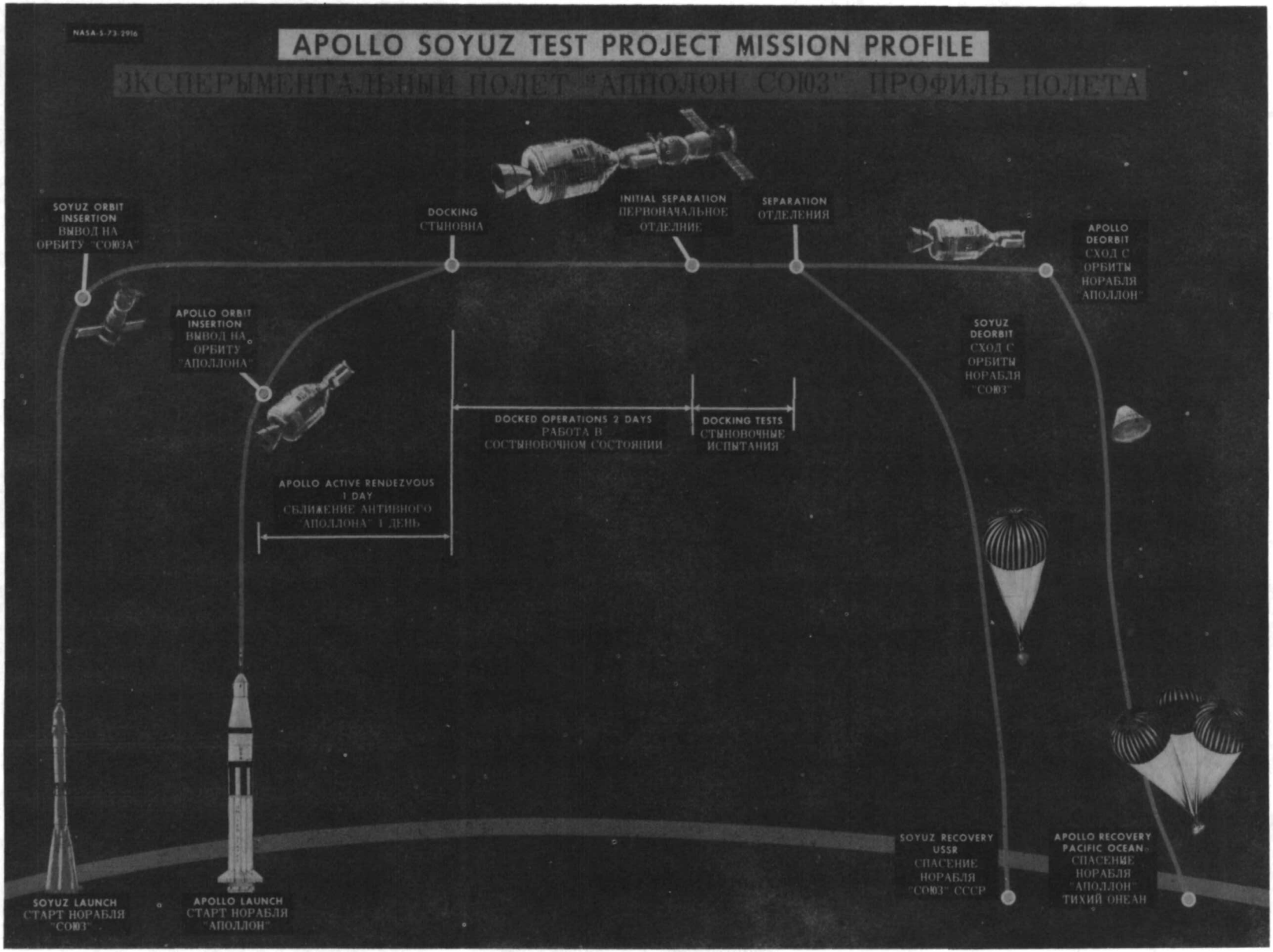
* Moscow time is obtained by adding 3 hours to Greenwich mean time. Eastern Standard Time is obtained by subtracting 5 hours from Greenwich mean time.


NASA-S-73-2916
APOLLO SOYUZ TEST PROJECT MISSION PROFILE
ЭКСПЕРИМЕНТАЛЬНЫЙ ПОЛЕТ "АПОЛЛОН СОЮЗ" ПРОФИЛЬ ПОЛЕТА
SOYUZ ORBIT INSERTION
ВЫВОД НА ОРБИТУ "СОЮЗА"
DOCKING
СТЫКОВКА
INITIAL SEPARATION
ПЕРВОНАЧАЛЬНОЕ ОТДЕЛЕНИЕ
SEPARATION
ОТДЕЛЕНИЯ
APOLLO DEORBIT
СХОД С ОРБИТЫ КОРАБЛЯ "АПОЛЛОН"
APOLLO ORBIT INSERTION
ВЫВОД НА ОРБИТУ "АПОЛЛОНА"
SOYUZ DEORBIT
СХОД С ОРБИТЫ КОРАБЛЯ "СОЮЗ"
DOCKED OPERATIONS 2 DAYS
РАБОТА В СОСТЫКОВОЧНОМ СОСТОЯНИИ
DOCKING TESTS
СТЫКОВОЧНЫЕ ИСПЫТАНИЯ
APOLLO ACTIVE RENDEZVOUS 1 DAY
СБЛИЖЕНИЕ АКТИВНОГО "АПОЛЛОНА" 1 ДЕНЬ
SOYUZ LAUNCH
СТАРТ КОРАБЛЯ "СОЮЗ"
APOLLO LAUNCH
СТАРТ КОРАБЛЯ "АПОЛЛОН"
SOYUZ RECOVERY USSR
СПАСЕНИЕ КОРАБЛЯ "СОЮЗ" СССР
APOLLO RECOVERY PACIFIC OCEAN
СПАСЕНИЕ КОРАБЛЯ "АПОЛЛОН" ТИХИЙ ОКЕАН

The Soyuz circularization maneuver to establish the final rendezvous and docking orbit will occur on the 17th Soyuz orbit. Eight hours later, at about 32 hours 22 minutes, a nominally zero phasing correction maneuver (PCM) is scheduled for the Apollo which would correct for any phasing errors which might have occurred at NC1 and at the Soyuz circularization maneuver. The second phasing maneuver (NC2), at 48 hours 34 minutes Soyuz GET, is an in-plane, horizontal maneuver to adjust the altitude difference with respect to the Soyuz. Following NC2, the corrective combination maneuver (NCC) is performed at 49 hours and 18 minutes Soyuz GET. The NCC maneuver controls the phasing, the differential altitude, and the differential plane between the two spacecraft at the coelliptic maneuver point. Finally, the coelliptic maneuver (NSR), at 49 hours and 55 minutes Soyuz GET, establishes an orbit which maintains a near constant differential altitude between the two spacecraft.

Docking will occur prior to darkness which is at 1645 GMT, during the 36th Soyuz orbit. The time of docking on the 29th Apollo revolution is approximately 51 hours 55 minutes Soyuz GET.

The amount of time which will be spent with the Apollo docked to the Soyuz is approximately 2 days. After final undocking from the Soyuz (following redocking exercises), at approximately 99 hours 15 minutes Soyuz GET, the Apollo will perform a 1 mps posigrade maneuver to avoid recontact, after which each spacecraft will conduct independent activities. The Soyuz will continue in orbit for approximately 43 hours after separation, landing at about 142 hours Soyuz GET in Kazakhstan. The Apollo will continue in orbit for approximately 6 days after separation, landing in the Pacific Ocean near Hawaii.

U.S. Space Vehicle Configuration

The Saturn IB launch vehicle, Apollo spacecraft, and other major hardware designed for the Apollo Soyuz Test Project mission will be as follows:

	Designation Numbers	
Configuration	Prime	Back-up
First Stage	S-IB-210	S-IB-209
Second Stage	S-IVB-210	S-IVB-209
Instrument Unit	S-IU-210	S-IU-209

Configuration	Designation Numbers Prime	Back-up
Spacecraft - L/V Adapter	SLA-18	SLA-22
Docking Module	DM-2	DM-1
Docking System	DS-5	DS-7
Service Module	SM-111	SM-119
Command Module	CM-111	CM-119
Launch Complex	LC-39B	LC-39B

Crew Assignments

The crew assignments for the Apollo Soyuz Test Project mission are:

U. S. Crew Assignment

	Prime	Backup
Commander (CDR)	Thomas P. Stafford	Alan L. Bean
Command Module Pilot (CMP)	Vance D. Brand	Ron E. Evans
Docking Module Pilot (DMP)	Donald K. Slayton	Jack R. Lousma

USSR Crew Assignment

Crew 1	Aleksey A. Leonov Valeriy N. Kubasov	Crew 3	Vladimir Dzanibekov Boris Andreyev
Crew 2	Anatoliy Filipchenko Nikolay Rukavishnikov	Crew 4	Yuri Romanenko Aleksander Ivanchenko

Apollo Soyuz Test Project Funding and Budget Request

	1973	1974	1975
Command and Service Module	$12,600,000	$32,300,000	$ 8,000,000
Docking Module and docking system	21,000,000	21,700,000	3,400,000
Experiments*	-	8,000,000	5,000,000
Launch vehicle	-	9,500,000	32,500,000
Launch operations	-	8,900,000	45,000,000
Flight support and operations	4,900,000	9,600,000	20,700,000
Total	$38,500,000	$90,000,000	$114,600,000

*Reprogramming will increase total for experiments to $16,000,000.

ASTP Major Contractors

Rockwell International Space Division Downey, California	Command and Service Module, Docking Module, Docking System, Spacecraft Support
Rockwell International Rocketdyne Division Canoga Park, California	Saturn Engines and Support
General Electric Company Valley Forge Space Center Philadelphia, Pennsylvania	Automatic Checkout Equipment (ACE) Support Launch Vehicle Ground Support Equipment
Chrysler Corporation Space Division New Orleans, Louisiana	S-IB Stage and Launch Support
McDonnell Douglas Corporation Huntington Beach, California	S-IVB Stage and Launch Support
IBM Federal Systems Division Gaithersburg, Maryland	Instrument Unit and IU Launch Support
ILC Industries Dover, Delaware	Space Suits
The Boeing Company Seattle, Washington	Reliability and Quality Assurance at JSC Launch Complex 39
Xerox Corporation Rockville, Maryland	Digital Evaluator
Bendix Corporation Peterboro, New Jersey	ST-124 Platform

Experiment	Contractor	Principal Investigator
MA-059 Ultra Violet Absorption -- Principal Investigator Portion	University of Pittsburgh Pittsburgh, Pennsylvania	Dr. T. M. Donahue
MA-059 Ultra Violet Absorption -- Spectrometer, Hardware Portion	Naval Ordnance Systems/Applied Physics Laboratory, Johns Hopkins University Silver Spring, Maryland	
MA-059 Ultra Violet Absorption -- Retroreflector, Array Portion	Precision Lapping & Optical Company Valley Stream, New York	
M-136 Earth Observation and Photography	Smithsonian Institution Air and Space Museum Washington, D.C.	
MA-083 Extreme Ultra Violet Telescope	University of California Berkeley, California Ball Brothers	Dr. C. S. Bowyer
MA-088 Helium Glow	University of California Berkeley, California Ball Brothers	Dr. C. S. Bowyer
MA-089 Doppler Tracking (Design Phase)	Smithsonian Institution Astrophysical Observatory Cambridge, Massachusetts	Dr. G. C. Weiffenbach Dr. M. D. Grossi
MA-048 Soft X-ray	Naval Research Laboratory Washington, D.C.	Dr. H. Friedman
MA-106 Light Flash, Phase I	AEC/Lawrence Radiation Laboratory University of California Livermore, California	Dr. C. A. Tobias Dr. T. F. Budinger
MA-017 Barium Cloud (Design Phase)	University of Alaska Geophysical Institute Fairbanks, Alaska	Dr. E. M. Wescott

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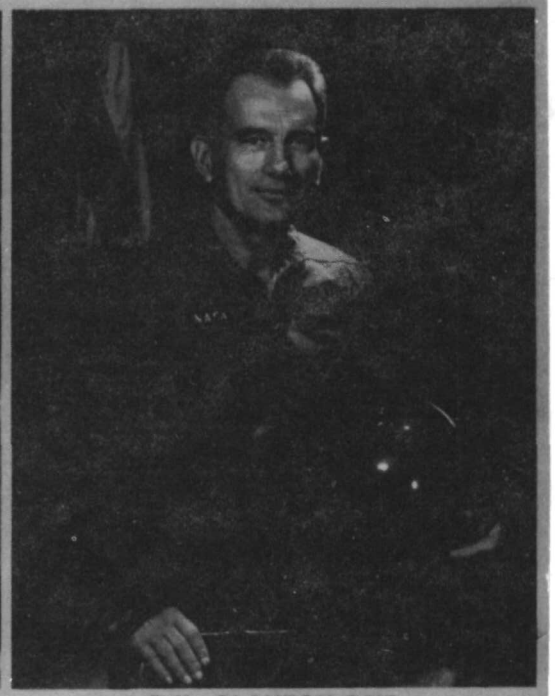
Experiment	Contractor	Principal Investigator
MA-028 Crystal Growth	Science Center Rockwell International Thousand Oaks, California	Dr. M. D. Lind
MA-031 Cellular Response	Baylor College of Medicine Houston, Texas	Dr. B. Sue Criswell
MA-032 Polymorphonuclear Leukocyte Response	Baylor College of Medicine Houston, Texas	Dr. R. Russell Martin
AR-002 Microbial Exchange	Johnson Space Center Houston, Texas	Dr. Gerald R. Taylor
MA-007 Stratospheric Aerosol Measurement	University of Wyoming Laramie, Wyoming	Dr. T. J. Pepin
MA-011 Electrophoresis Technology	Max Planck Institute Munich, Germany	Professor Kurt Hannig
MA-107 Biostack	University of Frankfurt Frankfurt-on-Main, Germany	Professor Horst Bucher

ASTP PRIME CREW

T.P. STAFFORD-CDR

V. BRAND-CMP



D.K. SLAYTON-DMP

ASTRONAUT SELECTION	SEPTEMBER 1962	APRIL 1966	APRIL 1959
SPACE MISSIONS FLOWN	GT, 6A, 9A AND APOLLO 10	SUPPORT CREW ON APOLLO 8 & 13 BACKUP CMP FOR APOLLO 15 BACKUP CREWMEMBER FOR SL 2 & 3	REMOVED FROM FLYING STATUS PRIOR TO MERCURY 7 MISSION; RETURNED TO FLIGHT STATUS IN MARCH 1972
TIME IN SPACE	290 HRS. 15 MIN.		
PRESENT POSITION	DEPUTY DIRECTOR FCOD	ASTRONAUT OFFICE	DIRECTOR FCOD
EDUCATION	USNA, BS OKLAHOMA CITY, HON. DS	UNIV. OF COLORADO, BSBA & BSAE UCLA, MBA	UNIV. OF MINNESOTA, BSAE
ORGANIZATIONS	EXPERIMENTAL TEST PILOTS	EXPERIMENTAL TEST PILOTS AIAA SIGMA NU BETA GAMMA SIGMA	EXPERIMENTAL TEST PILOTS AIAA
PHYSICAL DATA			
BIRTH	SEPTEMBER 1930	9 MAY 1931	1 MARCH 1924
HEIGHT	6 FT.	5 FT. 11 IN.	5 FT. 10 IN.
APPROX. WEIGHT	~ 175 LBS.	~ 175 LBS.	~ 160 LBS.

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ASTRONAUT BIOGRAPHIES

NAME: Thomas P. Stafford (Brigadier General, USAF)
Deputy Director, Flight Crew Operations

BIRTHPLACE AND DATE: Born September 17, 1930, in Weatherford, Oklahoma. His mother, Mrs. Mary Ellen Stafford, is a resident of Weatherford.

PHYSICAL DESCRIPTION: Black hair; blue eyes; height: 6 feet; weight: 175 pounds.

EDUCATION: Graduated from Weatherford High School, Weatherford, Oklahoma; received a Bachelor of Science degree from the United States Naval Academy in 1952; recipient of an Honorary Doctorate of Science from Oklahoma City University in 1967, an Honorary Doctorate of Laws from Western State University College of Law in 1969, an Honorary Doctorate of Communications from Emerson College in 1969, and an Honorary Doctorate of Aeronautical Engineering from Embry-Riddle Aeronautical University in 1970.

MARITAL STATUS: Married to the former Faye L. Shoemaker of Weatherford, Oklahoma. Her parents, Mr. and Mrs. Earle E. Shoemaker, reside in Thomas, Oklahoma.

CHILDREN: Dionne, July 2, 1954; Karin, August 28, 1957.

RECREATIONAL INTERESTS: His hobbies include handball, weight lifting, and swimming.

ORGANIZATIONS: Fellow of the American Astronautical Society and member of the Society of Experimental Test Pilots and the Explorers Club.

SPECIAL HONORS: Awarded the NASA Distinguished Service Medal, two NASA Exceptional Service Medals, the JSC Certificate of Commendation (1970), the Air Force Command Pilot Astronaut Wings, and the Air Force Distinguished Flying Cross; and co-recipient of the AIAA Astronautics Award, the 1966 Harmon International Aviation Trophy, the National Academy of Television Arts and Sciences Special Trustees Award (1969), and an Honorary Lifetime Membership in the American Federation of Radio and Television Artists.

Stafford:2

EXPERIENCE: Stafford, an Air Force Brigadier General, was commissioned in the United States Air Force upon graduation from Annapolis. Following his flight training, he flew fighter interceptor aircraft in the United States and Germany and later attended the USAF Experimental Flight Test School at Edwards Air Force Base, California.

He was Chief of the Performance Branch at the USAF Aerospace Research Pilot School at Edwards and responsible for the supervision and administration of the Flying curriculum for student test pilots. He was also an instructor in flight test training and specialized academic subjects -- establishing basic textbooks and directing the writing of flight test manuals for use by the staff and students. He is co-author of the Pilot's Handbook for Performance Flight Testing and the Aerodynamics Handbook for Performance Flight Testing.

He has logged more than 6,200 hours flying time, which includes more than 5,100 hours in jet aircraft.

CURRENT ASSIGNMENT: General Stafford was selected as an astronaut by NASA in September 1962. He served as backup pilot for the Gemini 3 flight.

On December 15, 1965, he and command pilot Walter M. Schirra were launched into space on the history-making Gemini 6 mission which performed the first rendezvous in space with the already orbiting Gemini 7 crew. Gemini 6 returned to Earth on December 16, 1965, after 25 hours, 51 minutes, and 24 seconds of flight.

Stafford made his second flight as command pilot of the Gemini 9 mission. During this 3-day flight which began on June 3, 1966, the crew performed three different types of rendezvous with the previously launched Augmented Target Docking Adapter; and pilot Eugene Cernan logged two hours and ten minutes outside the spacecraft in extravehicular activities. The flight ended after 72 hours and 20 minutes with a perfect reentry and recovery as Gemini 9 landed within 0.4 nautical miles of the designated target point and 1.5 miles from the recovery ship USS Wasp. (This is the closest entry and touchdown of any manned flight.)

Stafford:3

Following Gemini 9, Stafford served as backup commander for Apollo 7.

He was spacecraft commander of Apollo 10, May 18-26, 1969, the first comprehensive lunar-orbital qualification and verification flight test of an Apollo lunar module. Stafford was accompanied on the flight to the Moon by John W. Young (command module pilot) and Eugene Cernan (lunar module pilot). In accomplishing all mission objectives, Apollo 10 confirmed the operational performance, stability, and reliability of the command/service module/lunar module configuration during translunar coast, lunar orbit insertion, and lunar module separation and descent to within 8 nautical miles of the lunar surface. The latter maneuver employed all but the final minutes of the technique prescribed for use in an actual lunar landing and permitted critical evaluations of the lunar module propulsion systems and rendezvous and landing radar devices during completion of the first rendezvous and re-docking maneuvers in lunar orbit. In addition to demonstrating that man could navigate safely and accurately in the Moon's gravitational fields, Apollo 10 photographed and mapped tentative landing sites for future missions.

In his three space flights, Stafford has completed five rendezvous and logged 290 hours and 15 minutes in space.

As Chief of the Astronaut Office from August 1969 through May 1971, he was responsible for the coordination, scheduling, and control of all activities involving NASA astronauts. Gen. Stafford was named Deputy Director of Flight Crew Operations in June 1971. In this management capacity, he assists in directing the activities of the Astronaut Office, the Aircraft Operations Office, the Flight Crew Integration Division, the Crew Training and Simulation Division, and the Crew Procedures Division.

Gen. Stafford will command the United States flight crew for the Apollo/Soyuz Test Project (ASTP) mission.

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NAME: Vance DeVoe Brand (Mr.)
NASA Astronaut

BIRTHPLACE AND DATE: Born in Longmont, Colorado, May 9, 1931. His parents, Dr. and Mrs. Rudolph W. Brand, reside in Longmont.

PHYSICAL DESCRIPTION: Blond hair; gray eyes; height: 5 feet 11 inches; weight: 175 pounds.

EDUCATION: Graduated from Longmont High School, Longmont, Colorado; received a Bachelor of Science degree in Business from the University of Colorado in 1953, a Bachelor of Science degree in Aeronautical Engineering from the University of Colorado in 1969, and a Master's degree in Business Administration from the University of California at Los Angeles in 1964.

MARITAL STATUS: Married to the former Joan Virginia Weninger of Chicago, Illinois. Her parents, Mr. and Mrs. Ralph D. Weninger, reside in Chicago.

CHILDREN: Susan N., April 30, 1954; Stephanie, August 6, 1955; Patrick R., March 22, 1958; Kevin S., December 1, 1963.

RECREATIONAL INTERESTS: Enjoys running to stay in condition, skin diving, skiing, and canoeing.

ORGANIZATIONS: Member of the Society of Experimental Test Pilots, the American Institute of Aeronautics and Astronautics, Sigma Nu, and Beta Gamma Sigma.

SPECIAL HONORS: JSC Certificate of Commendation (1970) and NASA Exceptional Service Medal (1974).

EXPERIENCE: Military. Brand served as a commissioned officer and naval aviator with the U.S. Marine Corps from 1953 to 1957. His Marine Corps assignments included a 15-month tour in Japan as a jet fighter pilot. Following release from active duty, he continued in Marine Corps Reserve and Air National Guard fighter squadrons until 1964; and he still retains a commission in the Air Force Reserve.

Civilian. From 1960 to 1966, Brand was employed as a civilian by the Lockheed Aircraft Corporation. He worked first as a flight test engineer on the P3A "Orion" aircraft and later transferred to the experimental test pilot ranks. In 1963, he graduated from the U.S. Naval Test Pilot School and was assigned to Palmdale, California, as an experimental test pilot on Canadian

BRAND:2

and German F-104 development programs. Immediately prior to his selection to the astronaut program, Brand was assigned to the West German F-104G Flight Test Center at Istres, France, as an experimental test pilot and leader of a Lockheed flight test advisory group.

He has logged more than 4,500 hours of flying time, which include more than 3,670 hours in jets and 390 hours in helicopters.

CURRENT ASSIGNMENT: Mr. Brand is one of the 19 astronauts selected by NASA in April 1966. He served as a crew member for the thermal vacuum testing of the prototype command module and was an astronaut support crewman for the Apollo 8 and 13 missions. He was the backup command module pilot for Apollo 15.

Brand served as backup commander for the Skylab 3 and Skylab 4 missions.

Immediately following fulfillment of his Skylab assignments, he commenced training as a prime crewman for the Apollo-Soyuz Test Project (ASTP) mission.

NAME: Donald K. Slayton (Mr.)
Director, Flight Crew Operations

BIRTHPLACE AND DATE: Born March 1, 1924, in Sparta, Wisconsin.

PHYSICAL DESCRIPTION: Brown hair; blue eyes; height: 5 feet 10½ inches; weight: 165 pounds.

EDUCATION: Graduated from Sparta High School; received a Bachelor of Science degree in Aeronautical Engineering from the University of Minnesota, Minneapolis, Minnesota, 1949; an Honorary Doctorate in Science from Carthage College, Carthage, Illinois, in 1961; and an Honorary Doctorate in Engineering from Michigan Technological University, Houghton, Michigan, in 1965.

MARITAL STATUS: Married to the former Marjory Lunney of Los Angeles, California. Her parents, Mr. and Mrs. George Lunney, reside in Los Angeles.

CHILDREN: Kent, April 8, 1957.

RECREATIONAL INTERESTS: His hobbies are hunting, fishing, and shooting.

ORGANIZATIONS: Associate fellow of the Society of Experimental Test Pilots (ASETP); fellow of the American Astronautical Society; member of the American Institute of Aeronautics and Astronautics, the Experimental Aircraft Association, the Space Pioneers, and the Confederate Air Force; life member of the Order of Daedalians and the National Rifle Association of America; and honorary member of the American Fighter Aces Association.

SPECIAL HONORS: Awarded two NASA Distinguished Service Medals and the NASA Exceptional Service Medal; the Collier Trophy; the SETP Iven C. Kinchloe Award; the General Billy Mitchell Award; and the SETP J. H. Doolittle Award for 1972.

EXPERIENCE: Slayton entered the Air Force as an aviation cadet and received his wings in April 1943 after completing flight training at Vernon and Waco, Texas.

As a B-25 pilot with the 340th Bombardment Group, he flew 56 combat missions in Europe. He returned to the United States in mid-1944 as a B-25 instructor pilot at Columbia, South Carolina, and later served with a unit responsible for checking pilot proficiency in the

Slayton:2

B-26. In April 1945, he was sent to Okinawa with the 319th Bombardment Group and flew seven combat missions over Japan. He served as a B-25 instructor for one year following the end of the war and subsequently left the Air Force to enter the University of Minnesota.

He became an aeronautical engineer after graduation and worked for two years with the Boeing Aircraft Corporation at Seattle, Washington, before being recalled to active duty in 1951 with the Minnesota Air National Guard.

Upon reporting for duty, he was assigned as maintenance flight test officer of an F-51 squadron located in Minneapolis, followed by 18 months as a technical inspector at Headquarters Twelfth Air Force, and a similar tour as fighter pilot and maintenance officer with the 36th Fighter Day Wing at Bitburg, Germany.

Returning to the United States in June 1955, he attended the USAF Test Pilot School at Edwards Air Force Base, California. He was a test pilot there from January 1956 until April 1959 and participated in the testing of fighter aircraft built for the United States Air Force and some foreign countries.

He has logged more than 5,000 hours flying time, including 3,000 hours in jet aircraft.

CURRENT ASSIGNMENT: Mr. Slayton was named as one of the Mercury astronauts in April 1959. He was originally scheduled to pilot the Mercury-Atlas 7 mission but was relieved of this assignment due to a heart condition which was discovered in August 1959. The MA-7 mission was subsequently flown by M. Scott Carpenter in May 1962.

Slayton became Coordinator of Astronaut Activities in September 1962 and was responsible for the operation of the Astronaut Office. In November 1963, he resigned his commission as an Air Force Major to assume the role of Director of Flight Crew Operations. In this capacity, he is responsible for directing the activities of the Astronaut Office, the Aircraft Operations Office, the Flight Crew Integration Division, the Crew Training and Simulation Division, and the Crew Procedures Division.

In March 1972, following a comprehensive review of his medical status by NASA's Director for Life Sciences and the Federal Aviation Agency, Mr. Slayton was restored

Slayton:3

to full flight status and certified eligible for future manned space flights.

Slayton was named to the United States flight crew for the Apollo Soyuz Test Project (ASTP) mission. He will be making his first journey into space.

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NAME: Alan L. Bean (Captain, USN)
NASA Astronaut

BIRTHPLACE AND DATE: Born in Wheeler, Texas, on March 15, 1932. His parents, Mr. and Mrs. Arnold H. Bean, reside in his hometown Fort Worth, Texas.

PHYSICAL DESCRIPTION: Brown hair; hazel eyes; height: 5 feet 9½ inches; weight: 155 pounds.

EDUCATION: Graduated from Paschal High School in Fort Worth, Texas; received a Bachelor of Science degree in Aeronautical Engineering from the University of Texas in 1955; awarded an Honorary Doctorate of Science from Texas Wesleyan College in 1972.

MARITAL STATUS: Married to the former Sue Ragsdale of Dallas, Texas; her parents, Mr. and Mrs. Edward B. Ragsdale, are residents of that city.

CHILDREN: Clay A., December 18, 1955; Amy Sue, January 21, 1963.

RECREATIONAL INTERESTS: He enjoys being with his two children, and his hobbies include reading, painting, swimming, and diving.

ORGANIZATIONS: Fellow of the American Astronautical Society; member of the Society of Experimental Test Pilots.

SPECIAL HONORS: Awarded two NASA Distinguished Service Medals, the Navy Astronaut Wings and two Navy Distinguished Service Medals, recipient of the Rear Admiral William S. Parsons Award for Scientific and Technical Progress, the University of Texas Distinguished Alumnus Award and Distinguished Engineering Graduate Award, the Godfrey L. Cabot Award, the National Academy of Television Arts and Sciences Trustees Award, the Texas Press Association's Man of the Year Award for 1969, and the City of Chicago Gold Medal.

EXPERIENCE: Bean, a Navy ROTC student at Texas, was commissioned upon graduation in 1955. Upon completing his flight training, he was assigned to jet Attack Squadron 44 in Jacksonville, Florida. After a four-year tour of duty, he attended the Navy Test Pilot School at the Naval Air Test Center, Patuxent River, Maryland. After graduation he flew as a test pilot all types of naval aircraft (jet, propeller, and helicopter models). He then attended the School of Aviation Safety at the University of Southern California and was next assigned to Attack Squadron 172 at Cecil Field, Florida.

Bean:2

During his career, Captain Bean has flown 27 types of military aircraft as well as many civilian airplanes. He has logged more than 4,744 hours flying time -- including 3,923 hours in jet aircraft.

CURRENT ASSIGNMENT: Captain Bean was one of the third group of astronauts named by NASA in October 1963. He served as backup command pilot for the Gemini 10 mission and as backup lunar module pilot for the Apollo 9 mission.

Captain Bean was lunar module pilot on Apollo 12, man's second lunar landing, November 14-24, 1969. Captain Bean and Captain Conrad brought their lunar module to a safe touchdown in the Moon's Ocean of Storms -- after a flight of some 250,000 miles to within 300 feet of their targeted landing point. They explored the lunar surface for a distance of about 1 mile and deployed several lunar surface experiments, installing the first nuclear power generator station on the Moon to provide the power source. These long-term scientific experiments continue in operation today. Conrad and Bean then inspected Surveyor III, which had landed on the Moon some 30 months earlier, returning several parts to Earth. Throughout the lunar surface stay by Conrad and Bean, Captain Richard Gordon remained in lunar orbit aboard the command module, photographing landing sites for future missions and other areas of scientific interest.

Captain Bean was spacecraft commander of a Skylab mission (SL-3), July 28 to September 25, 1973. With him in the 59-day, 24,400,000-mile world record setting flight, were scientist-astronaut Dr. Owen K. Garriott and Marine Corps Lt. Colonel Jack R. Lousma. Mission II accomplished 150% of its pre-mission forecast goals. The crew returned to Earth 77,600 frames of film from 6 instruments recording the sun's activities. They also acquired 16,000 photographs and 18 miles of magnetic tape documenting our Earth's resources. The crew completed 333 medical experiment runs, obtaining the first data on the effects of weightlessness for 59 days.

Captain Bean has logged 1,671 hours and 45 minutes in space -- of which 10 hours and 26 minutes were spent in EVAs on the Moon and in Earth orbit.

Bean:3

Captain Bean is now in training as backup spacecraft commander of the United States flight crew for the joint American-Russian Apollo Soyuz Test Project.

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NAME: Ronald E. Evans (Captain, USN)
NASA Astronaut

BIRTHPLACE AND DATE: Born November 10, 1933, in St. Francis, Kansas. His father, Mr. Clarence E. Evans, lives in Bird City, Kansas, and his mother, Mrs. Marie A. Evans, resides in Topeka, Kansas.

PHYSICAL DESCRIPTION: Brown hair; brown eyes; height: 5 feet 11 inches; weight: 160 pounds.

EDUCATION: Graduated from Highland Park High School in Topeka, Kansas; received a Bachelor of Science degree in Electrical Engineering from the University of Kansas in 1956 and a Master of Science degree in Aeronautical Engineering from the U.S. Naval Postgraduate School in 1964.

MARITAL STATUS: Married to the former Jan Pollom of Topeka, Kansas; her parents, Mr. and Mrs. Harry M. Pollom, reside in Sun City, Arizona.

CHILDREN: Jaime D. (daughter), August 21, 1959; Jon P. (son), October 9, 1961.

RECREATIONAL INTERESTS: Hobbies include hunting, boating, swimming, fishing, and golfing.

ORGANIZATIONS: Member of Tau Beta Pi, Society of Sigma Xi, and Sigma Nu.

SPECIAL HONORS: Presented the NASA Distinguished Service Medal (1973), the Johnson Space Center Superior Achievement Award (1970); the Navy Distinguished Service Medal (1973), Navy Astronaut Wings, eight Air Medals, the Viet Nam Service Medal, and the Navy Commendation Medal with combat distinguishing device (1966); the University of Kansas Distinguished Service Citation (1973); Kansan of the Year (1972); and the Republic of Senegal's National Order of the Lion (1973).

EXPERIENCE: When notified of his selection to the astronaut program, Evans was on sea duty in the Pacific -- assigned to VF-51 and flying F8 aircraft from the carrier USS Ticonderoga during a period of seven months in Viet Nam combat operations.

Evans:2

He was a Combat Flight Instructor (F8 aircraft) with VF-124 from January 1961 to June 1962 and, prior to this assignment, participated in two WESTPAC aircraft carrier cruises while a pilot with VF-142. In June 1957, he completed flight training after receiving his commission as an Ensign through the Navy ROTC Program at the University of Kansas.

Total flight time accrued during his military career is 4,400 hours -- 4,000 hours in jet aircraft.

CURRENT ASSIGNMENT: Captain Evans is one of the 19 astronauts selected by NASA in April 1966. He served as a member of the astronaut support crews for the Apollo 7 and 11 flights and as backup command module pilot for Apollo 14.

On his first journey into space, Captain Evans occupied the command module pilot seat for Apollo 17 which commenced at 11:33 p.m. (CST), December 6, 1972, and concluded on December 19, 1972 -- the last scheduled manned mission to the Moon for the United States. He was accompanied on this voyage of the command module "America" and the lunar module "Challenger" by Eugene Cernan (spacecraft commander) and Harrison H. (Jack) Schmitt (lunar module pilot). While Cernan and Schmitt completed their explorations of the Taurus-Littrow landing area down on the lunar surface, Evans maintained a solo vigil in lunar orbit aboard the "America," completing assigned work tasks which required visual geological observations, hand held photography of specific targets, and the control of cameras and other highly sophisticated scientific equipment carried in the command module SIM-bay. Evans later completed a 1-hour and 6-minute extravehicular activity during the transearth coast phase of the return flight, successfully retrieving three camera cassettes and completing a personal inspection of the equipment bay area. This last mission to the moon for the United States broke several records set by previous flights which include: longest manned lunar landing flight (301 hours, 51 minutes); longest lunar surface extravehicular activities (22 hours and 4 minutes); largest lunar sample return (an estimated 115 kg (249 lbs)); and longest time in lunar orbit (147 hours, 48 minutes). Apollo 17 ended with a splashdown in the Pacific Ocean approximately 0.4 mile from the target point and 4.3 miles from the prime recovery ship, the USS Ticonderoga.

Evans:3

Completing his first space flight, Captain Evans has logged 301 hours and 51 minutes in space -- 1 hour and 6 minutes of which were spent in extravehicular activity.

Evans is backup command module pilot for the Apollo Soyuz Test Project (ASTP) mission.

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NAME: Jack Robert Lousma (Lieutenant Colonel, USMC)
NASA Astronaut

BIRTHPLACE AND DATE: Born February 29, 1936, in Grand Rapids, Michigan. His father, Mr. Jacob Lousma, resides in Jackson, Michigan.

PHYSICAL DESCRIPTION: Blond hair; blue eyes; height: 6 feet; weight: 195 pounds.

EDUCATION: Attended Tappan Junior High School and Ann Arbor High School in Ann Arbor, Michigan; received a Bachelor of Science degree in Aeronautical Engineering from the University of Michigan in 1959 and the degree of Aeronautical Engineer from the U.S. Naval Postgraduate School in 1965; presented an Honorary Doctorate of Astronautical Science from the University of Michigan in 1973.

MARITAL STATUS: Married to the former Gratia Kay Smeltzer of Ann Arbor, Michigan. Her mother, Mrs. Chester Smeltzer, resides in Bear Lake, Michigan.

CHILDREN: Timothy J., December 22, 1963; Matthew O., July 14, 1966; Mary T., September 22, 1968.

RECREATIONAL INTERESTS: He is an avid golfing enthusiast and enjoys hunting and fishing.

ORGANIZATIONS: Member of the Society of the Sigma Xi, the University of Michigan "M" Club, and the Officers' Christian Fellowship.

SPECIAL HONORS: Awarded the Johnson Space Center Certificate of Commendation (1970) and the NASA Distinguished Service Medal (1973); presented the Navy Distinguished Service Medal and the Navy Astronaut Wings (1974), the City of Chicago Gold Medal (1974).

EXPERIENCE: Lousma was assigned as a reconnaissance pilot with VMCJ-2, 2nd MAW, at Cherry Point, North Carolina, before coming to Houston and the Lyndon B. Johnson Space Center.

He has been a Marine Corps Officer since 1959 and received his wings in 1960 after completing his training at the U.S. Naval Air Training Command. He was then assigned to VMA-224, 2nd MAW, as an attack pilot and later served with VMA-224, 1st MAW, at Iwakuni, Japan.

Lousma:2

He has logged 3,000 hours of flight time -- 2,800 hours in jet aircraft and 200 hours in helicopters.

CURRENT ASSIGNMENT: Lt. Colonel Lousma is one of the 19 astronauts selected by NASA in April 1966. He served as a member of the astronaut support crews for the Apollo 9, 10, and 13 missions.

Lousma was pilot for Skylab (SL-3), July 28 to September 25, 1973. With him on this 59½-day flight were Alan L. Bean (spacecraft commander) and Owen K. Garriott (science-pilot). SL-3 accomplished 150% of many mission goals while completing 858 revolutions of the Earth and traveling some 24,400,000 miles in Earth orbit. The crew installed six replacement rate gyros used for attitude control of the spacecraft and a twin pole sunshade used for thermal control, and repaired nine major experiment or operational equipment items. They devoted 305 manhours to extensive solar observations from above the Earth's atmosphere, which included viewing two major solar flares and numerous smaller flares and coronal transients. Also acquired and returned to Earth were 16,000 photographs and 18 miles of magnetic tape documenting Earth resources observations of the 67 regional planning and development sites, 34 ocean investigation sites, 59 geological sites, 22 continental water resources sites, and 17 coastal zones, shoals, and bays. The crew completed 333 medical experiment performances and obtained valuable data on the effects of extended weightlessness on man. SL-3 ended with a Pacific splashdown and recovery by the USS New Orleans.

The crew of SL-3 logged 1,427 hours and 9 minutes each, setting a new world record for a single mission, and Lousma also logged 11 hours and 2 minutes in two separate extravehicular activities outside the orbital workshop.

Lousma has been designated backup docking module pilot of the United States flight crew for the Apollo Soyuz Test Project (ASTP) mission.

ASTP PRIME CREW-USSR




COSMONAUT SELECTION	A. LEONOV 1960	V. KUBASOV 1967	A. FILIPCHENKO 1963	N. RUKAVISHNIKOV 1967
SPACE MISSIONS FLOWN	CO-PILOT OF VOSKHOD 2 FIRST TO PERFORM EVA IN SPACE	B/U TECHNICAL SCIENTIST SOYUZ 5 FLIGHT ENGR. SOYUZ 6	PILOT SOYUZ 7	TEST ENGINEER SOYUZ 10
PRESENT POSITION	COL. IN AIR FORCE	CIVILIAN	LT. COL. IN AIR FORCE	CIVILIAN
EDUCATION	ATTENDED ZHUKOVSKIY ENGINEERING ACADEMY	MECHANICAL ENGR.-MS MOSCOW AVIATION SCHOOL	CHUGUYEV MILITARY SCHOOL – GRADUATED AIR FORCE ACADEMY	GRADUATED MOSCOW PHYSICS & ENGINEERING INSTITUTE
DATE OF BIRTH	30 MAY 1934	7 JAN, 1935	26 FEB 1928	18 SEPT 1932

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COSMONAUT BIOGRAPHIES

Aleksey Arkhipovich Leonov is a Lieutenant Colonel in the Red Air Force. He was born May 30, 1934 in Listvayanka, Altay Kray. He attended the Zhukovskiy Military Engineering Academy. He became a cosmonaut in 1960. Lt. Col. Leonov was the co-pilot of Voskhod 2 in 1965 and was the first man to perform extravehicular activity in space. He is currently slated to be the pilot for the joint Apollo Soyuz Test Project in 1975. Lt. Col. Leonov is married and has one child.

Valeriy Nikolayevich Kubasov is a civilian. He was born in Vyazniki, central Russia on January 7, 1935. In 1958 he graduated as mechanical engineer for aircraft building from the Moscow Aviation School. Mr. Kubasov received a Master of Science degree before becoming a cosmonaut in 1967. He was the backup technical scientist for Soyuz 5 and flight engineer on Soyuz 6 in 1969. Mr. Kubasov is currently slated to be flight engineer for the joint Apollo Soyuz Test Project in 1975. He is married and has one child.

Anatoliy Vasilyevich Filipchenko is a Colonel in the Red Air Force. He was born in Davydovka village, Voronezh region, south of Moscow February 26, 1928. He finished with honors from the Chuguyev Military School and in 1950 he graduated from the Air Force Academy. He became a cosmonaut in 1963. Col. Filipchenko was the backup Command pilot on Soyuz 4 and Command pilot on Soyuz 7 in 1969. He is currently slated to be a member of the first backup crew for the joint Apollo Soyuz Test Project in 1975. Col. Filipchenko is married and has two children.

Nikolay Nikolayevich Rukavishnikov is a civilian. He was born in Tomsk, a city in Siberia on September 18, 1932. In 1951 he joined the Moscow Physics and Engineering Institute and graduated in 1957. Mr. Rukavishnikov joined the cosmonaut unit in January 1967. He was the test engineer on Soyuz 10 in 1971 and had been slated to be the engineer of the Salyut station. Mr. Rukavishnikov is currently slated to be a member of the first backup crew of the joint Apollo Soyuz Test Project in 1975. He is married and has one child.

Vladimir Dzhanibekov is a Major in the Red Air Force. He was born in 1942 in the South Kazakhstan region. He graduated from the Higher Air School in 1965 as a pilot-engineer. He was enrolled in the Soviet cosmonauts' detachment in 1970, and has been named, along with Boris Andreyev, as a member of the second backup crew for the joint Apollo Soyuz Test Project.

Boris Andreyev is a civilian. He was born in Moscow in 1940. After graduating from Moscow's Bauman Higher Technical School, he joined a design bureau in 1965. He has been in the cosmonauts' training program since 1970, and was named as a member of the second backup crew for the planned 1975 joint Apollo Soyuz Test Project. The other member of this crew is to be Major Vladimir Dzhanibekov.

Yuri Romanenko is a captain in the Red Air Force. He was born in 1944 in the Orenburg region. In 1966, he graduated from a higher school as a pilot-engineer. He was enrolled in the cosmonauts' detachment in 1970, and has been named, along with Aleksander Ivanchenko, as a member of the third backup crew for the 1975 Apollo Soyuz Test Project.

Aleksander Ivanchenko is a civilian. He was born in 1940 in the town of Ivanteyevka near Moscow. After graduating from the Moscow Aviation Institute, he joined a design bureau in 1964. He has been in the cosmonauts' detachment since 1970, and was named as a member of the third backup crew for the planned 1975 joint Apollo Soyuz Test Project. The other member of this crew is to be Captain Yuri Romanenko.

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