

NEWS CENTERS

CAPE KENNEDY

NASA-Kennedy Space Center..... 867-2468
 NASA-Recorded Information..... 867-2525
 Joint Industry Press Center..... Gold Room
 Ramada Inn

HOUSTON

NASA-Manned Spacecraft Center..... 483-5111
 NASA-Recorded Information..... 823-4479
 Joint Industry Press Center..... Sheraton King's Inn
 488-5472

AC ELECTRONICS DIVISION, GENERAL MOTORS

Public Relations..... (414)762-7000
 Milwaukee, Wisconsin 53201

FOR APOLLO 7 MISSION:

Bruce McCristal..... Quality Court
 783-9431
 Dave Hudgens..... (Houston) Sheraton King's Inn
 488-0220
 Tom Nedwek..... Milwaukee

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Robert Byers..... Carriage House
 783-9430

RAYTHEON CORPORATION

John Severance..... Sheraton Cape Colony
 783-2252

TRANSPORTATION

AIR	Cape Area (305)	Houston (713)
National.....	784-0230.....	228-8431
Eastern.....	773-1270.....	224-6211
Delta.....	636-3144.....	225-1921
Braniff.....	621-2020.....	621-2020
American.....	222-9873.....	222-9873
Continental.....	223-1020.....	223-1020

GROUND

Avis.....	783-3643.....	643-0673
Hertz.....	783-7771.....	224-6111
National.....	783-7007.....	649-5555
Limousine.....	783-7800.....	488-1539
Taxi.....	783-7200.....	483-4001

MOTELS

Cape Kennedy Hilton.....	783-0361	Holiday Inn.....	488-1518
Carriage House.....	783-9430	Nassau Bay Motor Inn.....	488-3402
Holiday Inn.....	783-2771	Ramada Inn.....	488-2216
Howard Johnson.....	883-9481	Sheraton King's Inn.....	488-0220
Ramada Inn.....	783-9441		
Sheraton Cape Colony.....	783-2252		
Quality Court.....	783-9431		



UPRATED SATURN I

LAUNCH ESCAPE SYSTEM

COMMAND MODULE

REACTION CONTROL SYSTEM

SERVICE MODULE

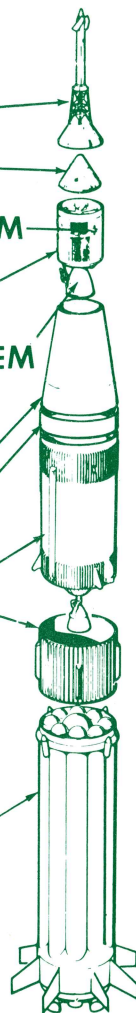
SERVICE PROPULSION SYSTEM
 22,000 LBS THRUST

LUNAR MODULE ADAPTER

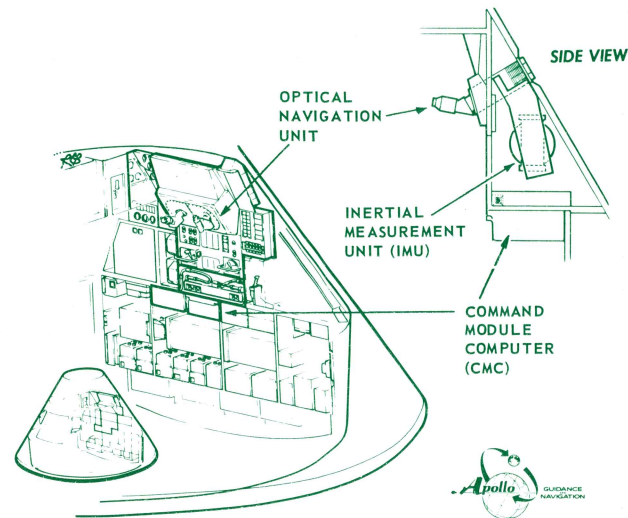
INSTRUMENT UNIT

SATURN IVB
 200,000 LBS THRUST

SATURN STAGE I
 1,600,000 LBS THRUST



GUIDANCE, NAVIGATION, AND CONTROL SYSTEM



THE APOLLO GUIDANCE AND NAVIGATION SYSTEM IS COMPOSED OF THREE BASIC SUBSYSTEMS: INERTIAL, OPTICAL, AND COMPUTER.

1. The inertial guidance subsystem is composed of inertial measurement unit (IMU) and associated equipment. This subsystem performs three major functions: (A) Measures changes in spacecraft attitude; (B) Measures spacecraft velocity due to thrust; and (C) Assists in generating steering signals.
2. The optical navigation subsystem is composed of a space sextant and a scanning telescope. Sightings on celestial bodies and landmarks on the moon and earth are used by the computer subsystem to determine the spacecraft's position and velocity and to align the inertial reference within the IMU.
3. The command module computer (CMC) performs five major functions: (A) Calculates steering signals and engine discharges necessary to keep the spacecraft on the required trajectory; (B) Positions the stable member in the IMU to a coordinate system defined by precise optical measurements; (C) Positions the optical unit to celestial objects; (D) Conducts limited malfunction isolation of the G&N system by monitoring the level and rate of system signals; and (E) Supplies pertinent spacecraft condition information to the display and control panel.

APOLLO 7



Guidance & Navigation Information



MISSION DESCRIPTION

1. MANNED

PRIME	BACKUP
Shirra	Stafford
Eisele	Young
Cunningham	Cernan
2. Earth Orbit - 164 Revolutions
3. Planned Duration - 10 Days, 20 Hours, 9 Minutes
4. Booster - Updated Saturn 1B
5. Spacecraft - CSM-101
6. Block II G&N System No. 204

G&N TEST OBJECTIVES

1. Inertial Measurement Unit (IMU) orientation determination
2. IMU in flight alignment
3. Guidance Navigation Control System velocity control
4. Guidance Navigation Control System attitude control
5. Guidance Navigation Control System entry monitoring
6. Sextant tracking
7. G&N/Manual thrust vector control takeover
8. Orbital Navigation/Landmark Tracking
9. Midcourse navigation
10. G&N system performance through all phases

GENERAL OBJECTIVES

Apollo 7 is the first manned Apollo mission and is intended to demonstrate the capability of the spacecraft, crew, and support facilities to conduct an open ended, earth orbital mission of up to 11 days duration. The mission will also qualify the heat shield, environment control system radiator performance and verify proper deployment of the spacecraft lunar module adapter panels. Other activities will include transposition, simulated docking and active rendezvous with the SIV B booster.

PHASE 1

PRE-RENDEZVOUS ORBITAL ACTIVITIES

1. CSM/SIVB separation over Hawaii during Revolution 2.
2. Simulated docking maneuver over Hawaii during Revolution 2.
3. Phasing maneuver over Antiqua during Revolution 3 to set up conditions for rendezvous planned for second day.

PHASE 2

RENDEZVOUS

Begins about 26 hours into the mission and normally will require three hours and 30 minutes to complete.

1. Service propulsion system (SPS) Burn 1 - Corrective maneuver to begin the CSM 60 miles ahead and 30 miles above the SIVB.
2. Second SPS Burn - Coelliptic maneuver to begin the CSM 10 miles behind and 8 miles below the SIVB.
3. Terminal Phase initiation TPI using the reaction control system RCS to begin the CSM ½ mile ahead and 1 mile below the SIVB.
4. Terminal Phase Finalization - When the CSM is about one nautical mile from the SIVB the crew will begin braking the spacecraft, making optical corrections until the CSM is about 100 feet from the SIVB. Station keeping will last about 20 minutes as the CSM and SIVB pass over Hawaii.

PHASE 3

POST-RENDEZVOUS CSM MANEUVERS

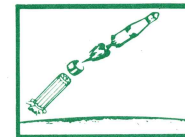
After the CSM leaves the vicinity of the SIVB, several SPS tests are planned. The table below contains information on the purpose of the burns.

SPS-3	Burn Duration 9.0 seconds	To adjust spacecraft orbit and establish deorbit capability
SPS-4	.5 seconds	Guidance and navigation control system test
SPS-5	57.0 seconds	Propellant utilization and gauging system test
SPS-6	.5 seconds	Guidance and navigation minimum impulse test
SPS-7	19.6 seconds	To adjust perigee altitude prior to the deorbit burn
SPS-8	9.8 seconds	Deorbit burn to assure crew and spacecraft reentry

PHASE 1



LIFT OFF



S-IVB IGNITION



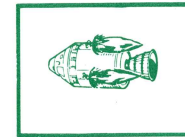
EARTH ORBIT INSERTION



CSM/S-IVB SEPARATION



SIMULATED DOCKING



PHASING MANEUVER

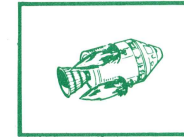
PHASE 2



SPS BURN 1



SPS BURN 2



TERMINAL PHASE INITIATION

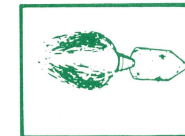


TERMINAL PHASE FINALIZATION

PHASE 3



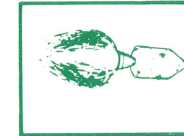
SPS BURN 3



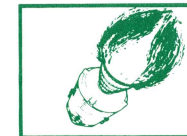
SPS BURN 4



SPS BURN 5



SPS BURN 6



SPS BURN 7



SPS BURN 8



CSM/SIVB SEPARATION



ATMOSPHERIC ENTRY



DESCENT & SPLASH



RECOVERY

FLIGHT EXPERIMENTS

- S005 - TERRAIN PHOTOGRAPHY
SELECTED LAND AND OCEAN AREAS
- S006 - WEATHER PHOTOGRAPHY
SELECTED AREAS TO IMPROVE TECHNIQUES OF WEATHER ANALYSIS
- M006 - BONE DEMINERALIZATION
X-RAY STUDIES OF SELECTED BONES BEFORE AND AFTER FLIGHT
- M011 - BLOOD STUDIES
TO DETERMINE IF THE SPACE ENVIRONMENT PRODUCES CELLULAR CHANGES IN THE BLOOD OF HUMANS
- M023 - LOWER BODY NEGATIVE PRESSURE
TO ASSESS CARDIOVASCULAR RECONDITIONING