APOLLO 18
MISSION SIMULATION

MISSION
FLIGHT PLAN

JSC-2225
GENERIC, REV G

OVERVIEW

JSC LUNAR GENERIC, REV G 7/72

OVERVIEW

Apollo - The Moon Missions is a game simulation that places you into the rigorous Apollo astronaut training program.

In order to experience an actual mission, you will be required to learn in detail the Apollo rocket and spacecraft systems.
These hardware systems include the Saturn V multi-stage rocket system, the command module, the service propulsion system and the lunar module.

Players need to first thoroughly review the Training Disk and complete all of the astronaut written and flight simulation tests. Once all training tests have been completed satisfactorily, you will be assigned a top-secret Apollo mission. Players are allowed to go directly to the Kennedy Space Center launch complex 39 and begin a launch without any training. **However, this is not advisable.**

If you wish to launch without training, select 'Game Options' from the main screen. Then select 'Load Game.' Choose the file 'Launch' and press OK. Then, on the main screen, select 'Liftoff.' You will be presented with a prompt screen allowing you to either continue on to launch, or train in the simulator of your choice.

HOW DO I INSTALL THE GAME?

To install *Apollo - The Moon Missions*, first place the Taurus Littrow Mission Disk into your CD player. If you have Windows 95, and autorun is active, the game setup will start automatically. If autorun is not enabled, or if you are using Windows 3.1, select Explorer or File Manager and double click the corresponding setup icon. ('Setup' for Windows 95 or 'Setup 16' for Windows 3.1) The install screen will appear. Press 'Install' and follow the screen prompts.

IMPORTANT INSTALL NOTES

This simulation requires 90 MB of storage space on your hard drive. If you have less than 32 MB of system ram, and your video display card does not have 4 MB, then you must play the Training Disk in 256 color mode.

THE TRAINING DISK MUST BE PLAYED IN 256 COLOR, 640x480 MODE.

THE TAURUS LITTROW MISSION DISC SHOULD BE PLAYED USING 16 BIT OR TRUE COLOR.

If you experience a drastic color shift, system crash or system freeze while reviewing the Training Disk, check your system display (located in Win 3.1 File Manager or Win 95 Settings control panel) to make sure you are in 256 color and 640x480 mode.

DO NOT HAVE ANY OTHER PROGRAMS RUNNING *(SCREEN SAVERS, ANSWERING MACHINES, ETC.)* WHEN YOU INSTALL THIS PRODUCT.

HOW DO I START?

All astronaut trainees should become familiar with the command module, lunar module panels and the spacecraft systems.

Select 'Command Module' or 'Lunar Module' in Astronaut Training. Work your way through all the buttons and listen to the description of each system. During a mission, you will be required to know where all systems buttons are located and how they work with each other.

Manned space flight is very dangerous. Activating or shutting down the wrong system hardware may kill you.

In space, you are traveling over 4,000 feet per second, and time is of the essence. In most cases, such as a launch or mission flight, you are given only 5 or 10 seconds to find a system button, enter a gimbal rate, complete a thrust duration / percentage setting or switch on vital spacecraft hardware systems.

Astronauts must know their spacecraft and all of its accompanying systems.

Apollo Astronaut Trainees should learn the Apollo flight profile. This includes the lunar landing and the EVA (Extra Vehicular Activity.)

It is strongly advisable for all Apollo Astronauts to complete the written tests and the flight simulations. By accomplishing these, Trainees will have the necessary experience to dock, land and deal with in-flight mission emergencies.

THE GAME

The game box should contain this user's manual (Apollo Flight Plan,) CD-ROM Training Disc, CD-ROM Apollo Taurus Littrow Mission Disc, and a product registration card.

The purpose of this Flight Plan is to supply you, the pilot, with the appropriate steps and procedures to successfully complete a manned lunar mission. It is a good idea to use this Flight Plan during the mission. Some mission control center (MCC) radio transmissions may not be received or might be garbled, which is called LOS (loss of signal). Use of this Flight Plan may be helpful to pilots during LOS periods.

Inexperienced players should thoroughly review the CD-ROM Training Disc before attempting a complete mission.

COMMUNICATING WITH MISSION CONTROL

Communicating with mission control is the most important element for successful completion of the Apollo mission. All radio traffic to and from the spacecraft is done via the primary and secondary spacecraft radio equipment.

Communication from mission control is sent to the player at a realistic transmission rate, requiring the player to acquire highly developed listening skills.

It is critical that the player listen carefully to all commands, and respond when appropriate. Failure to do so will result in hardware failure and/or the mission being terminated.

WHAT IS LOS?
Loss of signal. Players should note that there are periods of LOS when the spacecraft is out of range from NASA ground track stations. During these periods, there will be no communication from MCC, and the pilot must solve all flight and hardware problems him/her self.

By reviewing the Training Disc, the player will receive adequate instruction as to the workings of the Apollo space flight hardware and procedures necessary to safely complete the mission.

PLAYER RESPONSE

The following are the key phrases that the game and mission control will understand and you must reply to (type out and be ready to enter) when called: **GO, COPY, NO GO.** Generally, during major events such as liftoff, major engine burns and landing you will be asked to respond to mission control.

NOTE:

All communication with mission control is accomplished by mouse clicking the AOS button on panels CSM3 & LM3. This is done for all major mission events. Listen for “Apollo 18” or “Apollo, do you copy?”
All astronauts must respond to mission control.

THE MISSION

Players are assigned missions depending on their level of competency after attending the Manned Spacecraft Training Division, located on the Training Disc.

Upon completion of each training level (Rookie, Pilot, Commander), the player must prove his/her proficiency through written testing and Apollo flight simulation.

After successfully completing all testing, the pilot is assigned a specific mission.

Once in progress, missions are scored by the following criteria:

1 - launching on time
2 - trans lunar insertion (TLI) burn performed on time
3 - nominal course correction burns
4- accurate spacecraft docking
5 - accurate lunar landing
6 - successful extra vehicular activity (EVA)
7 - on-time lunar liftoff
8 - proper management of fuel and consumables
9 - accurate reentry

After completing a successful mission, players are eligible for awards, such as mission patches, rank insignias and mission certificates. (See “Awards” section)

LEVELS OF DIFFICULTY

The simulators are divided into three levels: Rookie, Pilot, and Commander.

Each player must take a written computer test that includes background information and hardware orientation. There are several sets of tests for each level to ensure performance capability.

Once the player has completed the Rookie level, he/she is entitled to attend a flight simulator session, starting with a simulated Saturn V launch and reentry.

The second area of testing is the Pilot level. This level includes a more difficult written test and flight simulation which includes lunar module and command module docking.

The third and final level is the Commander level, which is the most challenging. Players must be proficient in all aspects of the Apollo mission. This level culminates with a moon landing simulation and liftoff.

Once all three levels have been successfully completed, players are exposed to a top-secret Department of Defense (DOD) briefing, and given their lunar mission.

After successful completion of the first mission, players are given the opportunity to partake in upcoming missions by contacting:

AIM SOFTWARE, LTD.
http://aimgames.com

THE FLIGHT PLAN

The game designers have replicated, as closely as possible, actual NASA flight plan books so that the player may have as realistic a space flight experience as possible.

The Flight Plan is divided into eight sections:

1 - Overview
2 - Glossary
3 - Cue cards: this information allows the player a quick glance at upcoming mission events.
4 - CSM caution and warning indicators
5 - Lunar module caution and warning indicators
6 - Apollo 18 mission
7 - Spacecraft systems
8 - Lunar map

This book should be used during the mission for review, and during periods of LOS (loss of signal) when the player must determine, diagnose and correct hardware problems.

THE COMMAND MODULE

The command module is divided into five panels:

1 - CSM-1: this panel is used by the command module pilot for liftoff and reentry. Players may switch to the other command module panels by selecting CSM-2 or CSM-3.

2 - CSM-2: this panel is used by the spacecraft commander to monitor all command module vital functions. Players may switch to the other command module panels by selecting CSM-1 or CSM-3.

3 - CSM-3: this panel is used by the lunar module pilot, and displays most of the command module's systems. Players may switch to the other command module panels by selecting CSM-1 or CSM-2.

4 - CSM-4: this panel is only visible when the align sight button is activated on panel CSM-2. This panel is used only for LM docking.

5 - CSM-4/Starfinder: this panel is only visible when the align sight button is activated on panel CSM-2, and the Starfinder system is engaged. This panel is used for guidance and course adjustments, usually before engine firings.

NOTE: Your Starfinder has a pre-loaded star map. Player must match the appropriate stars with the three circles on the crew optical align sight to insure a precise trajectory.

Further information regarding command module systems and flight hardware can be obtained from the CD-ROM Training Disc.

THE LUNAR MODULE

The lunar module is divided into four panels:

1 - LM-1: this panel is used by the spacecraft commander to land on the moon. It includes the horizon indicator and the IMU computer display. Players may switch to the other lunar module panels by selecting LM-2 or LM-3.

2 - LM-2: this panel contains the radar display which is critical for the pitchover phase of the lunar landing mission. It also includes the primary lunar module system controls. Players may switch to the other lunar module panels by selecting LM-1 or LM-3.

3 - LM-3: this panel contains all the vital engineering systems for the lunar module. Players may switch to the other lunar module panels by selecting LM-1 or LM-2.

It is essential that the player monitor LM-1, LM-2, and LM-3 during the descent to the lunar surface.

4a - LM-4 (LANDING PHASE) Landing Display: this panel is used for landing the lunar module precisely at the pre-determined landing site. Access can be obtained by selecting the align sight system, located on LM-2, and engaging the landing display.

4b - LM-4 (DOCKING PHASE) Align Sight: this panel is used for docking with the command module once the lunar descent has been completed. Access can be obtained by selecting the align sight system located on LM-2.

Further information regarding lunar module systems and flight hardware can be obtained from the CD-ROM Training Disc.

THE SATURN V ROCKET

The Saturn V rocket is controlled from the command module panels CSM-1, CSM-2, and CSM-3.

The rocket is discarded shortly after liftoff when the spacecraft reaches Earth orbit. A detailed description of the Saturn V rocket is available on the CD-ROM Training Disc.

KENNEDY SPACE CENTER

All space flight launches occur from the Kennedy Space Center.

Access to the Kennedy Space Center is available by placing the Taurus Littrow Mission Disc into the CD-ROM player.

JOHNSON SPACE CENTER

The Johnson Space Center is the central location for all manned spacecraft training activities.

It should also be noted that from the time the Saturn V rocket clears the tower at Kennedy Space Center, mission management is conducted from the Mission Control Center located at the Johnson Space Center.

Players must test and practice flight simulation at JSC before they can launch into space. The Johnson Space Center is only available on the Training Disc.

AWARDS

Upon successful completion of training, players are eligible to purchase flight patches.

Patch #1: Pilot wings (customized name)	$9.95
Patch #2: Saturn V rocket patch	$9.95
Patch #3: Command Module patch	$9.95
Patch #4: Lunar Module patch	$9.95
Patch #5: Apollo 18 Mission patch	$9.95

Additional patches are available upon successful completion of the mission. Also, other merchandise is available by contacting.

FUTURE MISSIONS

Additional top-secret missions are available upon successful completion of Apollo 18.

These future missions will challenge the player in every aspect of space flight, including lunar surface excursions with the lunar rover, and dangerous lunar exploration.

Additionally, the missions will involve ancient hidden lunar mysteries that the U.S. government keeps highly confidential and classified. These lunar mysteries may reveal secrets that the government does not want exposed to the world.

To purchase upcoming missions, special spacecraft upgrades, merchandise or game information, ask your local software retailer, or contact AIM SOFTWARE, LTD. on the internet at:

http://www.aimgames.com

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This game is dedicated to the courageous men and women of America's space program.

Contact: www.aimgames.com for pre-flight briefing data on all upcoming missions.

APOLLO 19, 20, 21, 22, 23 & 24 are your next missions.

Look for *Apollo - The Deluxe Edition* with EVA, which includes the lunar rover and the complete moon mission package. Available at your local retailer, or contact Project Two Interactive or AIM Software, Ltd. on the internet at:

http://www.aimgames.com

GLOSSARY

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Glossary

801 Alarm
This indicator warns the crew of computer memory and data overload

A Battery
This button activates the A battery, which
supplies emergency back-up electricity for the lunar module systems

Ablating Materials
Special heat-dissipating materials on the surface of a spacecraft that vaporize during reentry

Abort
The unscheduled termination of a mission prior to its completion

Abort Arm
This button arms the lunar module abort sequence computer which can be fired manually or under computer control during the descent stage only

A Bus
This button allows electrical current to flow through the single A bus circuit, providing power to the command module's CSM 1, and in the lunar module panel 1

Accelerometer
An instrument to sense accelerative forces and convert them into corresponding electrical quantities usually for controlling, measuring, indicating or recording purposes

AC Gauge
This gauge indicates total usable alternating current available on board the spacecraft. Located in both the CSM and LM

Adapter Skirt
A flange or extension of a stage or section that provides a ready means of fitting another stage or section to it

AGS
This button activates the automated guidance system. During an aborted landing attempt, this system stabilizes and controls the lunar ascent stage
Align Sight

This button activates the optical targeting device which allows the lunar module and command module to dock with each other

Altitude
This indicator allows the pilot to read the altitude relative to the Earth or lunar surface. This is done in feet as well as miles

Amps Gauge
This gauge indicates total usable amperage supplied by all fuel cells and batteries on board the spacecraft

Antenna Mast Bravo
This button deploys the bravo directional antenna system, which is used for narrow band communication and data transmission and reception

Antenna Mast Omni
This button deploys the omni directional antenna mast system, which is used for wide band communication and data transmission and reception

Antipode
Point on surface of planet exactly 180 degrees opposite from reciprocal point on a line projected through center of body. In Apollo usage, antipode refers to a line from the center of the Moon through the center of the Earth and projected to the Earth surface on the opposite side. The antipode crosses the mid-Pacific recovery line along the 165th meridian of longitude once each 24 hours.

AOS
This indicator, when lit with a green light, tells the crew they have acquisition of signal with mission control

Apocynthion
Point at which object in lunar orbit is farthest from the lunar surface -- object having been launched from body other than Moon. (Cynthia, Roman goddess of Moon)

Apogee
The point at which a Moon or artificial satellite in its orbit is farthest from Earth

Apolune

Point at which object launched from the Moon into lunar orbit is farthest from lunar surface, e.g.: ascent stage of lunar module after staging into lunar orbit following lunar landing

Arm Joystick
This button activates the joystick controller, which is used during docking maneuvers

Ascent Descent Rate
This button activates the display and shows the lunar module ascent rate after liftoff from the lunar surface, or the descent rate when descending to the lunar surface

Ascent Fuel
This gauge gives the crew a graphic description of the lunar module ascent stage fuel status

Ascent Stage
This button starts the ignition sequence for the lunar module's ascent engine

Ascent Tank
This button opens the ascent tank fuel valve on the LM

Ascent Track
The ascent track button is located below the velocity display screen. When activated, this indicator gives the pilot a detailed view of the vehicle launch window which includes "not to exceed" limits and warnings

Attitude
The position of an aerospace vehicle as determined by the inclination of its axis to some frame of reference; for Apollo, an inertial, space-fixed reference is used

A Under Volt
This indicator warns the crew that the A electrical bus is not passing proper electrical current and voltage

Auto Pilot (Indicator)
This indicator alerts the crew that the auto pilot has failed

Auto Pilot (Button)
Located in both the command and lunar modules, this button activates the primary auto pilot for the entire space vehicle. This

includes propulsion, reaction control, flight guidance, environmental control, and life support

Auto Sequence
Located in the engine command panels of both the CSM and LM, this button starts the computer control of the engine ignition sequence. It is used to control all of the Saturn rocket and the CSM-LM engine systems

Back-Up Battery (Gauge)
Located in the LM electrical status panel, this gauge indicates the available back-up battery electrical power

Back-Up Battery (Button)
This button, when activated, supplies the spacecraft with emergency power. The life expectancy of these batteries is not longer than 5 minutes. Located in both the CSM and LM

Back-Up Computer
This button activates the emergency computer system that acts as a back-up for guidance, engine control, and life support, if the primary computer system fails. Located in both the CSM and LM

Battery A (Button)
This button activates the A battery, which supplies emergency back-up electricity for the service propulsion system and the command module.
It is used primarily during reentry

Battery A (Gauge)
This gauge exhibits total DC voltage stored in the A battery system. Located in the CSM and LM

Battery A Low
This indicator warns the crew of low electrical current in the command module primary A battery. Located in both the CSM and LM

Battery B (Button)
This button activates the B battery which supplies emergency back-up electricity for the service propulsion system and the command module.
It is used primarily during reentry

Battery B (Gauge)
This gauge exhibits total DC voltage stored in the B battery system. Located in the CSM and LM

Battery B Low
This indicator warns the crew of low electrical current in the command module primary B battery. Located in both the CSM and LM

Battery C (Button)
This button activates the C battery which supplies emergency back-up electricity for the service propulsion system and the command module.
It is used primarily during reentry

Battery C (Gauge)
This gauge exhibits total DC voltage stored in the C battery system. Located in both the CSM and LM

Battery C Low
This indicator warns the crew of low electrical current in the command module primary C battery. Located in both the CSM and LM

B Battery
This button activates the B battery, which supplies emergency back-up electricity for the lunar module systems.

B Bus
This button allows electrical current to flow through the single B bus circuit, providing power to the command module's CSM 2, and in the lunar module panel 2

B Under Volt
This indicator warns the crew that the B electrical bus is not passing proper electrical current and voltage

Burnout
The point when combustion ceases in a rocket engine

Bus Tie-Line
This button connects 2 or all 3 of the electrical bus sub-systems together allowing the spacecraft additional electrical current in time of emergency or final reentry

Cabin Pressure (Button)
This button adjusts the lunar module cabin pressure by opening and closing the main oxygen valve

Cabin Pressure (Indicator)

This indicator warns the crew that a serious problem has occurred with the lunar module cabin atmosphere

Cabin Repressurization
This button controls the atmosphere inside the space vehicle. It is used to adjust the cabin atmosphere after docking with the lunar module

Canard
A short, stubby wing-like element affixed to the launch escape tower to provide CM blunt end forward aerodynamic capture during an abort

Caution and Warning
This button activates the entire spaceship's caution and warning system. Located in both the CSM and LM

C Battery
This button activates the C battery, which supplies emergency back-up electricity for the lunar module systems

C Bus
This button allows electrical current to flow through the single C bus circuit, providing power to the command module's CSM 3, and in the lunar module panel 3

Celestial Guidance
The guidance of a vehicle by reference to celestial bodies

Celestial Mechanics
The science that deals primarily with the effect of force as an agent in determining the orbital paths of celestial bodies

Cell 1 Gauge
This gauge is located in the electrical status panel of the CSM. It allows the crew to check fuel cell 1 electrical status which includes temperature and output voltage

Cell 2 Gauge
This gauge is located in the electrical status panel of the CSM. It allows the crew to check fuel cell 2 electrical status which includes temperature and output voltage

Cell 3 Gauge
This gauge is located in the electrical status panel of the CSM. It allows the crew to check fuel cell 3 electrical status which includes temperature and output voltage

Channel 1

This display allows the crew to tune the primary radio reception frequency so they may receive voice transmission from mission control and the command module or lunar module

Channel 2
This display allows the crew to tune the secondary radio reception frequency so they may receive voice transmission from mission control and the command module or lunar module

Chutes Deploy
This button is used during reentry to deploy the 3 main parachutes, allowing the spacecraft to land gently in the ocean

Cislunar
Adjective referring to space between Earth and the Moon, or between Earth and Moon's orbit

Closed Loop
Automatic control units linked together with a process to form an endless chain

Computer
This indicator alerts the crew to lunar module and/or command module basic computer problems

Computer Status
This button displays the entire computer system, including diagnostic functions. Located in both the CSM and LM

Contact
This green light indicator allows the crew to see when the lunar module contact probes located on the descent stage make contact with the lunar surface

CSM
Command service module

CSM Breaker
This button is the primary electrical circuit breaker for the command service module and its supporting systems

CSM RCS
This button is used to enable the command service module's reaction control systems

CSM System
This button activates primary essential systems in the command module

C Under Volt
This indicator warns the crew that the C electrical bus is not passing proper electrical current and voltage

Data Display
This button turns on the data radar display screen

Data Radar Display
This video screen displays all command module system data as well as radar and tracking information

DC Gauge
This gauge indicates total usable direct current available on the spacecraft. Located in both the CSM and LM

Deboost
A retrograde maneuver which lowers either perigee or apogee of an orbiting spacecraft. Not to be confused with deorbit

Declination
Angular measurement of a body above or below celestial equator, measured north or south along the body's hour circle. Corresponds to Earth surface latitude

Delta V
Velocity change

Descent Fuel Gauge
This gauge gives the crew a graphic description of the lunar module descent stage fuel status

Descent Stage
This button starts the ignition sequence for the lunar module's descent engine

Descent Tank
This button opens the descent tank fuel valve

Digital Computer
A computer in which quantities are represented numerically and which can be used to solve complex problems

Dock
This button allows the pilot to engage the docking mechanism, or it allows the pilot to release the lunar module from the command module

Down-Link
The part of a communication system that receives, processes and displays data from a spacecraft

ECS Rates
This button engages the environmental control system, which includes oxygen, heating, and cooling. Located in both the CSM and LM

ECS Breaker
This button controls main electrical current to the environmental control system and its supporting hardware

Engine Breaker
This button acts as a primary electrical circuit breaker for the main propulsion system. Located in both the CSM and LM

Engine Fail
This indicator warns the crew that the primary engine has failed, and an abort sequence must be initiated. Located in both the CSM and LM

Engine Heater
This button activates the engine heating system and prevents fuel and oxidizers from freezing. Located in both the CSM and LM

Entry Corridor
The final flight path of the spacecraft before and during Earth reentry

Entry Track
The entry track indicator is located below the velocity display screen. When activated, this indicator gives the pilot a detailed view of the Earth return corridor, which includes “not to exceed” limits and warnings

Ephemeris
Orbital measurements (apogee, perigee, inclination, period, etc.) of one celestial body in relation to another at given times. In space flight, the orbital measurements of a spacecraft relative to the celestial body about which it orbited

Escape Velocity
The speed a body must attain to overcome a gravitational field, such as that of Earth; the velocity of escape at the Earth’s surface is 36,700 feet-per-second

EVA Charge
This button, when activated, recharges the oxygen in the astronauts' extra vehicular activity backpacks

Explosive Bolts
Bolts destroyed or severed by a surrounding explosive charge which can be activated by an electrical impulse

External Camera
This button, when depressed, allows the crew
to view external camera feeds supplied by the launch pad or on-board camera systems.
Located in both the CSM and LM

Fairing
A piece, part or structure having a smooth, stream-lined outline, used to cover a non-streamlined object or to smooth a junction

Flight Control System
A system that serves to maintain attitude stability and control during flight

Frequency 1
This display allows the crew to tune the primary radio to the appropriate transmission frequency so they may transmit voice and data to mission control and the lunar module and command module

Frequency 2
This display allows the crew to tune the secondary radio to the appropriate transmission frequency so they may transmit voice and data to mission control and the lunar module and command module

Fuel Cell
An electrochemical generator in which the chemical energy from the reaction of oxygen and a fuel is converted directly into electricity

Fuel Cell 1
This button activates fuel cell 1, which is the primary source of electrical production for the spacecraft

Fuel Cell 1 Fail
This indicator warns the crew that fuel cell 1 has failed, and that batteries must be employed to supply electrical energy to the spacecraft

Fuel Cell 1 Gauge
This gauge is located in the electrical status panel. It allows the pilot to check fuel cell 1 electrical status which includes temperature and output voltage

Fuel Cell 1 Temperature
This indicator alerts the crew that the fuel cell 1 temperature is above limits

Fuel Cell 2
This button activates fuel cell 2, which along with fuel cell 1, is the primary source of electrical production for the spacecraft

Fuel Cell 2 Fail
This indicator warns the crew that fuel cell 2 has failed, and that batteries must be employed to supply electrical energy to the spacecraft

Fuel Cell 2 Gauge
This gauge is located in the electrical status panel. It allows the pilot to check fuel cell 2 electrical status which includes temperature and output voltage

Fuel Cell 2 Temperature
This indicator alerts the crew that the fuel cell 2 temperature is above limits

Fuel Cell 3
This button activates fuel cell 3, which is the primary source of electrical production for the service propulsion system and the command module

Fuel Cell 3 Fail
This indicator warns the crew that fuel cell 3 has failed, and that batteries must be used to supply electrical energy to the command module

Fuel Cell 3 Gauge
This gauge is located in the electrical status panel. It allows the pilot to check fuel cell 3 electrical status which includes temperature and output voltage

Fuel Cell 3 Temperature
This indicator alerts the crew that the fuel cell 3 temperature is above limits

Fuel Flow

This button activates the fuel pump which supports the primary service propulsion and RCS systems

Fuel Low
This indicator warns the crew that the primary engine or the reaction control system propellants are dangerously low. Located in both the CSM and LM

Fuel Pump (Button)
This button switches on or off the primary fuel pump for the engines and the RCS

Fuel Pump (Indicator)
This indicator warns the crew that the lunar module or command module fuel pump has failed

Fuel System
This button activates the lunar module fuel system

G or G Force
Force exerted upon an object by gravity or by reaction to acceleration or deceleration, as in a change of direction: one g is the measure of force required to accelerate a body at the rate of 32.16 feet-per-second

Gear Lock
This button extends the lunar module's landing gear

Gimbal Rates
This button displays the entire spacecraft engine gimbal data. Located in both the CSM and LM

Gimbaled Motor
A rocket motor mounted on gimbal; i.e.: on a contrivance having two mutually perpendicular axis of rotation, so as to obtain pitching and yawing correction moments

G/N
This button activates the lunar module's guidance and navigation system

GNCS Rates
This button controls the guidance navigational control system, which is used to adjust and control the spaceship trajectory and guidance related functions

Guidance System

A system which measures and evaluates flight information, correlates this with target data, converts the result into the conditions necessary to achieve the desired flight path, and communicates this data in the form of commands to the flight control system

H2O Stir
This button activates a mechanical stirring device which works in conjunction with the electrical heater to prevent the water tank from freezing

H2O System
This indicator alerts the crew to a serious malfunction with the spacecraft water system

Hatch
This button opens and closes the spacecraft hatch

Heliocentric
Sun-centered orbit or other activity which has the Sun at its center

Helium
This gauge is located in the electrical status panel on the CSM, and the cryogenics panel in the LM. It indicates total helium reserves on board the spacecraft which are required, in addition to oxidizer and hydrazine, to provide fuel for the service propulsion system

Helium Flow
This button opens the primary valve which allows helium to flow into the service propulsion systems engine

Helium Low
This indicator warns the crew of low helium gas which is used for the command module main engine propellant

High Band
This button activates the high band display allowing the pilot to view a wide range radar signal

High Temperature
This indicator warns the crew that excessive temperatures exist in the cryogenic tanks and systems

Horizon Indicator
Commonly referred to as the 8-ball, this indicator gives the pilot a horizon, yaw, pitch, or roll indication while in flight and landing on the moon. Located in both the CSM and LM

IMU

This button turns on the inertial measuring unit which is the primary device to navigate the spacecraft by using the stars and celestial targets. Located in both the CSM and LM

Inertial Guidance
Guidance by means of the measurement and integration of acceleration from onboard the spacecraft. A sophisticated automatic navigation system using gyroscopic devices, accelerometers etc., for high -speed vehicles. It absorbs and interprets such data as speed, position, etc., and automatically adjusts the vehicle to a pre-determined flight path. Essentially, it knows where it's going and where it is by knowing where it came from and how it got there. It does not give out any radio frequency signal so it cannot be detected by radar or jammed

Injection
The process of boosting a spacecraft into a calculated trajectory

Input
This button allows the pilot to input gimbal rates, guidance, and navigation data directly into the spacecraft's primary computer. Located in both the CSM and LM

Insertion
The process of boosting a spacecraft into an orbit around the Earth or other celestial bodies

Internal Power
During the launch phase, external power emanates from the launch pad to the rocket.
This button switches the vehicle from using pad power to internal power moments before launch

Inverter
This button activates the spacecraft's electrical inverter, which supplies AC to DC electrical current

Inverter Fail
This indicator warns the crew that a serious electrical problem has occurred in the AC to DC converter

LES Abort (Launch Escape System Abort)
This button controls the launch escape rockets which are used to jettison the command service module from the stack during launch

LM
Lunar module

LM Jettison
This button activates the jettison device which releases the lunar module from its docking position with the command module

LM System
This button activates all primary and essential systems in the lunar module

Logic Fault
This indicator alerts the crew as to a serious computer software failure when landing the LM

LOS
This indicator, when lit with a red light, tells the crew they have loss of signal with mission control

Low Band
This button activates the narrow field radar system amplifying the radar image for close up viewing

Main Breaker
This button allows electrical current to flow through the entire space vehicle system. Located in both the CSM and LM

Main Bus
This button activates and allows electrical current to flow through the main bus circuitry. Located in both the CSM and LM

Main Bus Fail
This indicator warns the crew that the main bus electrical system has failed and that batteries must be started or a bus reroute must occur

Main Pump
This button activates the main pump device which supplies coolant and gas to the various sub-systems on the command module

Main SPS
This button controls primary ignition of the command module's service propulsion system engine.

Main Tie-Line
This button connects all electrical bus sub-systems together, allowing the lunar module to access any or all of its batteries and fuel cells

Manual Fire
This button is used during emergency situations, such as computer failure, to manually fire the spacecraft's primary engines. Located in both the CSM and LM

Master Alarm
This button and indicator, with an accompanying audio warning, alerts the crew to major malfunctions with the spaceship and its systems. Located in both the CSM and LM

Master Arm
Located in the engine command panel, this button is the first step in allowing the pilot to fire the main Saturn rocket engines and to fire the ascent or descent stage engines. Additionally, this button controls the command service module, primary engine, and reaction control systems during flight. Located in both the CSM and LM

Memory Fail
This indicator alerts the crew as to a serious computer memory failure

Mission Clock
This indicator displays mission elapsed time, and can be used as a countdown event clock. Located in both the CSM and LM

Multiplexing
The simultaneous transmission of two or more signals within a single channel. The three basic methods of multiplexing involve the separation of signals by time division, frequency division and phase division

Navigation Fault
Located in the master caution and warning system, this indicator alerts the crew to navigation problems. Located in both the CSM and LM

O2
This gauge, located in the electrical status panel of the CSM and the cryogenics panes of the LM, indicates the total oxygen reserves available on the spacecraft

O2 Flow
This button opens the primary valve which allows oxygen to flow into the spacecraft. Located in both the CSM and LM

O2 System

This indicator alerts the crew that there is a serious oxygen problem occurring aboard the space vehicle. Located in both the CSM and LM

Optical Navigation
Navigation by sight, as opposed to inertial methods, using stars or other visible objects as reference

Oxidizer
In a rocket propellant, a substance such as liquid oxygen or nitrogen tetroxide which supports combustion of the fuel

Oxidizer Flow
This button opens all valves and activates all pumps for the oxidizer propellants. Located in both the CSM and LM

Oxidizer
This gauge, located in the electrical status panel of the CSM and the cryogenics panes of the LM, indicates total oxidizer reserves on board the spacecraft which are required, in addition to helium and hydrazine, to provide fuel for the service propulsion system

Oxidizer Low
This indicator warns the crew of low oxidizer gases which are used for the command module's main engine propellant

Panel CSM 1, Panel CSM 2, Panel CSM 3
These buttons allow the crew to switch to other command service module instrument panels, which also include the lunar module when it is docked

Panel LM 1, Panel LM 2, Panel LM 3
These buttons allow the crew to switch to other lunar module instrument panels, which also include the command module the when it is docked

Penumbra
Semi-dark portion of a shadow in which light is partly cut off, e.g.: surface of Moon or Earth away from Sun where the disc of the Sun is only partly obscured

Pericynthion
Point nearest Moon of object in lunar orbit -- object having been launched from body other than Moon

Perigee
Point at which a Moon or an artificial satellite in its orbit is closest to the Earth

Perilune
The point at which a satellite (e.g.: a spacecraft) in its orbit is closest to the Moon. Differs from pericynthion in that the orbit is Moon-originated

PGNS
This button activates the primary guidance and navigation system, and receives celestial data from the inertial measuring unit

Pitch
The movement of a space vehicle about an axis (Y) that is perpendicular to its longitudinal axis

Pitch Rate
This indicator allows the pilot to control and read the vehicle pitch rate. Located in both the CSM and LM

Prime Computer
This button turns on and off the primary spacecraft computers. Located in both the CSM and LM

Prime Radio
This indicator warns the crew that the primary radio system has failed

Pyro Arm
This button arms explosive charges which are employed to open parachutes, jettison the S4-B stage, service propulsion system and the lunar module. This system must be turned on before jettison can occur

Quad Forward/Reverse
This button activates all forward and reverse thrusters on the command and lunar modules.

Quad Port
This button activates all port (left) reaction control thrusters on the command and lunar modules

Quad Starboard
This button activates all starboard reaction control thrusters on the command and lunar modules

Radar

This button activates the spacecraft radar systems. Located in both the CSM and LM

Radar Fail
This indicator warns the crew of a radar system malfunction. Located in both the CSM and LM

Radar Systems
Located in the flight systems panel, this button turns on all command service module radar transmitters and receivers. It also sends data to the primary and back-up computers

Radio Fail
This indicator warns the crew that the lunar module radio system has failed

Radio System
This button activates all primary and secondary communication systems. Located in both the CSM and LM

RCS (Reaction Control System)
This button is used to enable the lunar module's reaction control systems. The RCS is used for attitude adjustment and small course corrections

RCS Fail
This indicator alerts the crew to a serious malfunction with the reaction control system. Located in both the CSM and LM

RCS Flow
This button activates the reaction control system and allows fuel to be used

RCS Fuel
This gauge indicates the total fuel status of the service propulsion system for the reaction control system jets. Located in both the CSM and LM, this gauge indicates fuel status during the decent and ascent stage

RCS Tank
This button opens the RCS tank fuel valve

RCS Tie-line
When this button is engaged, it allows the pilot to combine total ascent and descent RCS fuel supplies

Reentry

The return of a spacecraft that reenters the atmosphere after flight above it

Retrorocket
A rocket that gives thrust in a direction opposite to the direction of the object's motion

Right Ascension
Angular measurement of a body eastward along the celestial equator from the vernal equinox (0 degrees RA) to the hour circle of the body. Corresponds roughly to Earth surface longitude, except as expressed in hrs:min:sec instead of 180 degrees west and east from 0 degrees (24 hours = 360 degrees)

Roll
The movements of a space vehicle about its longitudinal (X) axis

Roll Rate
This indicator allows the pilot to control and read the vehicle roll rate. Located in both the CSM and LM

S-1C Fuel
This gauge indicates total fuel status of the first stage of the Saturn rocket

S-1C Jettison
This button is used to jettison the first stage of the Saturn rocket during launch

S-2 Fuel
This gauge indicates total fuel status of the second stage of the Saturn rocket

S-2 Jettison
This button is used to jettison the second stage of the Saturn rocket during launch

S-4B Fuel
This gauge indicates total fuel status of the third stage of the Saturn rocket

S-4B Jettison
This button is used to jettison the third stage of the Saturn rocket during launch

Saturn S1 S2 S4
This button starts the ignition sequence of the Saturn 5 rocket system

Saturn Engine Status
These five circular engine indicators are used during liftoff. They give current status of engine conditions by indicating red or green

S-Band
A radio-frequency band of 1,550 to 5,200 megahertz

S-Band System
This button activates the lunar module S-band radio system

SCS
This button activates the stabilization control system, which acts as a pitch, roll, and yaw auto pilot. Located in both the CSM and LM

SCS Fail
This indicator warns the crew that the stabilization control system has failed

Second Radio
This indicator warns the crew that the secondary radio system has failed

Selenocentric
Adjective referring to orbit having Moon as center

Selenographic
Adjective relating to physical geography of Moon. Specifically, positions on lunar surface as measured in latitude from lunar equator and in longitude from a reference lunar meridian

SPS JET (Service Propulsion System Jettison)
This button activates the jettison device which releases the command module from the service propulsion system. This is done before reentry

Set Gimbal
This indicator locks the main engine nozzle coordinates into the computer, allowing precise engine thrust to occur. Located in both the CSM and LM

Sidereal
Adjective relating to measurement of time, position or angle in relation to the celestial sphere and the vernal equinox

Signal Indicator
This indicator tells the crew whether they have acquisition or loss of signal with mission control

Slope
The slope indicator is located below the velocity display screen. When activated, this button gives the pilot either a green or red flashing indication which relates to the correct or incorrect slope angle

SPS Breaker
This button controls main electrical current to the service propulsion system and its supporting hardware

SPS Data (Service Propulsion System Data)
This button displays all operational data related to the service propulsion system

SPS Fuel
This gauge indicates total fuel status of the service propulsion system

Stage Ignition
This indicator, located in the Saturn engine status panel, gives the pilot ignition status during liftoff and staging events

Star Finder
This button activates the star finder navigation system. By utilizing a pre-loaded star map, the crew can realign their trajectory after a serious IMU error

State Vector
Ground-generated spacecraft position, velocity and timing information uplinked to the spacecraft computer for crew use as a navigational reference

System Fire
This indicator alerts the crew that there is smoke or a fire somewhere on the vehicle. Located in both the CSM and LM

Tank Heater
This button turns on the tank heating element which prevents water and various gasses from freezing

Tank Stir
This button activates a mechanical stirring device which works in conjunction with the electrical heater to prevent tank freezing. On the CSM, there are two tanks, A and B, that are stirred

Target Rates
This button displays the target rates for the command module or the lunar module. It works in conjunction with the radar system and helps the pilot locate the docking vehicle

Telementering
A system for taking measurements within an aerospace vehicle in flight and transmitting them by radio to a ground station

Telemetry Fail
This indicator warns the crew that all telemetry transmission to mission control has failed. Located in both the CSM and LM

Terminator
Separation line between lighted and dark portions of celestial body which is not self luminous

Thrust
This controllable indicator allows the pilot to adjust primary engine thrust. It also indicates current thrust status. Located in both the CSM and LM

Thrust Duration
This controllable device is used to set engine burn times and also acts as a master velocity warning indicator. Located in both the CSM and LM

Trajectory Display
This display indicates the lunar module trajectory while in the descent and ascent corridor. It gives the pilot an indication of correct trajectory perimeters

Ullage
The volume in a closed tank or container that is not occupied by the stored liquid; the ratio of this volume to the total volume of the tank; also an acceleration to force propellants into the engine pump intake lines before ignition

Umbra
Darkest part of a shadow in which light is completely absent, e.g.: surface of Moon or Earth away from Sun where the disc of the Sun is completely obscured

Under Volt
This indicator alerts the crew to electrical problems. Located in both the CSM and LM

Update

This button updates the primary and back-up computers with new mission control S-band data. This button also downloads spacecraft system data to mission control

Up-Link Data
Information fed by radio signal from the ground to a spacecraft

Velocity
This indicator allows the pilot to read the relative velocity and closure rates of the space vehicle. Located in both the CSM and LM

Velocity Display
This display indicates the spaceship perimeters while in the liftoff corridor. It also gives the pilot an indication of the vehicle entry corridor when returning to Earth

Velocity Warning Indicator
This status display is used to warn the pilot of excessive G-force loads on the space vehicle during launch and entry

Water Pack/Beacon
This button activates all flotation devices which are used to keep the command module afloat after splashdown.
This button also activates the emergency radio beacon, which is used after a splashdown to allow recovery forces to easily locate the space capsule

Yaw
Angular displacement of a space vehicle about its vertical (Z) axis

Yaw Rate
This indicator allows the pilot to control and read the vehicle yaw rate. Located in both the CSM and LM

LAUNCH SIMULATION

SECTION 1-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TRAINING

FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 001	BLOCK 1: RADIO FREQUENCY SETTINGS
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SET PRIMARY FREQUENCY STEP 3: SET PRIMARY CHANNEL

ITEM: 002	BLOCK 1: RADIO FREQUENCY SETTINGS
	STEP 1: SET SECONDARY FREQUENCY STEP 2: SET SECONDARY CHANNEL STEP 3: VOICE CHECK

ITEM: 003	BLOCK 1: COMMAND MODULE SYSTEM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CSM SYSTEM ON STEP 3: DATA DISPLAY ON STEP 4: COMPUTER DISPLAY ON

ITEM: 004	BLOCK 1: INERTIAL MEASUREMENT UNIT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: IMU ON

ITEM: 005	BLOCK 1: PRIME COMPUTER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: PRIME COMP ON STEP 3: CHECK COMPUTER DISPLAY READOUT

ITEM: 006	BLOCK 1:GUIDANCE NAVIGATION CONTROL
	STEP 1: SWITCH TO PANEL CSM 2 ;STEP 2: GNCS ON STEP 3: CHECK GNCS RATES DISPLAY READOUT

APOLLO 18
TRAINING

FLIGHT PLAN **BLOCK 1 LAUNCH**

ITEM: 007	BLOCK 1: FUEL CELL ACTIVATION
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: FUEL CELL-1 ON STEP 3: FUEL CELL-2 ON STEP 4: FUEL CELL-3 ON STEP 5: CHECK ALL FUEL CELL GAUGES

ITEM: 008	BLOCK 1: FUEL FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: FUEL FLOW ON STEP 3: SWITCH TO CSM 1, CHECK FUEL GAUGE

ITEM: 009	BLOCK 1: OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: OXID FLOW ON STEP 3: CHECK OXID GAUGE

ITEM: 010	BLOCK 1: MAIN PUMP ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN PUMP ON

ITEM: 011	BLOCK 1: HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: HYDRO FLOW ON STEP 3: CHECK HYDRO GAUGE

ITEM: 012	BLOCK 1: INVERTER ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: INVERTER ON

APOLLO 18
TRAINING

FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 013	**BLOCK 1:** BATTERIES A, B, C ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: BATTERY A,B,C ON STEP 3: CHECK GAUGES: BATT. A,B,C

ITEM: 014	**BLOCK 1:** OXYGEN FLOW
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: 0-2 FLOW ON STEP 3: CHECK 0-2 GAUGE

ITEM: 015	**BLOCK 1:** BACK-UP COMPUTER ON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: BACK-UP COMPUTER ON STEP 3: CHECK COMPUTER STATUS / CSM 2

ITEM: 016	**BLOCK 1:** MAIN, A, C ELEC. BUS ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN BUS ON STEP 3: A BUS ON STEP 4: C BUS ON STEP 5: CHECK AMPS GAUGE STEP 6: CHECK AC GAUGE STEP 7: SWITCH TO CSM 2: CHECK SPS DISPLAY

NOTE: B BUS CIRCUIT IS DEFAULTED ON LAUNCH PAD. POWER IS CONNECTED UNTIL ITEM 22, EVENT IS COMPLETED.

LAUNCH WILL AUTO ABORT AT T-MINUS 5 SEC IF CSM IS NOT CONFIGURED PROPERLY.

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 019	**BLOCK 1:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH DISPLAY TO GIMBAL RATES STEP 3: ENTER X-RATE DATA STEP 4: ENTER Y-RATE DATA STEP 5: CHECK GIMBAL RATES: CSM 2 DISPLAY

ITEM: 020	**BLOCK 1:** SET GIMBAL
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 021	**BLOCK 1:** MAIN BREAKER CLOSED
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN BREAKER ON STEP 3: CHECK AC & DC GAUGES

ITEM: 022	**BLOCK 1:** INTERNAL POWER SWITCH
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: INT POWER ON STEP 3: SWITCH TO CSM 3 STEP 4: CHECK AC, DC & FUEL CELL 1,2,3 GAUGES

ITEM: 023	**BLOCK 1:** CAUTION AND WARNING ON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CAUTION/WARNING ON

ITEM: 024	**BLOCK 1:** SATURN S1, S2, S4B ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SATURN S1, S2, S4B ON

ITEM: 025	**BLOCK 1:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 026	**BLOCK 1:** LAUNCH ESCAPE ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SAFETY OPEN STEP 3: ARM ABORT SYSTEM

ITEM: 027	**BLOCK 1:** AUTO SEQUENCE START
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 028	**BLOCK 1:** S-1C JETT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: S-1C JETT ON

ITEM: 029	**BLOCK 1:** LAUNCH ESCAPE JETTISON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: LES JETT ON

ITEM: 030	**BLOCK 1:** S-2 JETT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: S-2 JETT ON

LM DOCKING /TLI SIMULATION

SECTION 2-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 2 TLI

ITEM: 031	**BLOCK 2:** DEPLOY ANTENNA MAST
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: DEPLOY ANTENNA MAST (OMNI) STEP 3: SWITCH TO CSM 3 STEP 4: CHECK PRIMARY & SECONDARY FREQ.

CHECK UPDATES FOR ANTENNA DIRECTION (BRAVO / OMNI)

ITEM: 032	**BLOCK 2:** TLI ENGINE GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH DISPLAY TO GIMBAL RATES STEP 3: ENTER X-RATE DATA STEP 4: ENTER Y-RATE DATA STEP 5: CHECK GNCS RATES DISPLAY

ITEM: 033	**BLOCK 2:** SET GIMBAL DATA
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 034	**BLOCK 2:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 035	**BLOCK 2:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 2 TLI

ITEM: 036	**BLOCK 2:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 037	**BLOCK 2:** ARM S-4B
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM S-4B

ITEM: 038	**BLOCK 2:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 042	**BLOCK 2:** ENABLE MAIN PUMP
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SWITCH MAIN PUMP ON

ITEM: 043	**BLOCK 2:** ENABLE FUEL FLOW
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SWITCH FUEL FLOW ON STEP 3: CHECK ALL FUEL GAUGES

ITEM: 044	**BLOCK 2:** ENABLE RADAR SYSTEM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON RADAR SYSTEM STEP 3: SWITCH TO CSM 2 RADAR DISPLAY STEP 4: ACQUIRE S4-B TARGET

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 2 TLI

ITEM: 045	**BLOCK 2:** PYRO ARM S4-B
	STEP 1: SWITCH TO PANEL CSM 2
	STEP 2: OPEN SAFETY SHIELD
	STEP 3: PYRO ARM ON

ITEM: 046	**BLOCK 2:** S4-B JETTISON
	STEP 1: SWITCH TO PANEL CSM 1
	STEP 2: SWITCH S4-B JETT ON
	STEP 3: SWITCH TO PANEL CSM 2
	STEP 4: SWITCH ON EXT CAM
	STEP 5: CHECK FOR GOOD S4-B JETTISON

ITEM: 047	**BLOCK 2:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1
	STEP 2: SWITCH ON CSM RCS

ITEM: 048	**BLOCK 2:** ALIGN SIGHT ENABLE
	STEP 1: SWITCH TO PANEL CSM 2
	STEP 2: SWITCH ON ALIGN SIGHT
	STEP 3: CHECK DISPLAY FOR RADICAL ON

ITEM: 049	**BLOCK 2: AUTO SWITCH TO CSM 4**
	STEP 1: USE AUX CONTROL (MOUSE)
	STEP 2: USE JOYSTICK CONTROLER FOR DOCK
	STEP 3: CHECK DISPLAY FOR LM TARGET RATES

NOTE: WHEN ALIGN SIGHT IS DEPRESSED, CSM COMPUTER AUTO SWITCHES TO COAS FOR LM DOCKING

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 2 TLI

ITEM: 050	**BLOCK 2:** ARM JOYSTICK CONTROLLER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: ARM JOYSTICK ON STEP 3: CHECK HAND CONTROLLER STATUS STEP 4: SELECT CSM 3 / CHECK QUADS

ITEM: 051	**BLOCK 2:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK ENGINE IGNITION STATUS

ITEM: 053	**BLOCK 2:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT AND GIMBAL RATES STEP 3: ENTER GIMBAL RATES

ITEM: 054	**BLOCK 2:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SELECT SET GIMBAL BUTTON STEP 3: SELECT GIMBAL RATES, CHECK DISPLAY

ITEM: 055	**BLOCK 2:** STABILIZATION CONTROL
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SCS ON STEP 3: CHECK SPS DATA DISPLAY

ITEM: 056	**BLOCK 2:** ENGINE HEATER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SPS ENGINE HEATER ON STEP 3: CHECK SPS DATA DISPLAY

ITEM: 057	**BLOCK 2:** TANK HEATER
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: TANK HEATER ON STEP 3: SWITCH TO CSM 2 STEP 4: CHECK SPS DATA DISPLAY

ITEM: 058	**BLOCK 2:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 059	**BLOCK 2:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 059a	**BLOCK 2:** SET THRUST PERCENT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST PERCENT

ITEM: 060	**BLOCK 2:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 061	**BLOCK 2:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

LM POWERUP / LUNAR LANDING SIMULATION

SECTION 3-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TRAINING

FLIGHT PLAN

BLOCK 3
LM POWERUP & LOI

ITEM: 062	**BLOCK 3:** LM HATCH OPEN
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: PANEL LM 1 ON

ITEM: 063	**BLOCK 3:** RADIO FREQUENCY SETTINGS
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: RADIO SYSTEM ON STEP 3: SET PRIMARY FREQUENCY STEP 4: SET PRIMARY CHANNEL

ITEM: 064	**BLOCK 3:** RADIO FREQUENCY SETTINGS
	STEP 1: SET SECONDARY FREQUENCY STEP 2: SET SECONDARY CHANNEL STEP 3: VOICE CHECK

ITEM: 065	**BLOCK 3:** LUNAR MODULE SYSTEM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: LM SYSTEM ON

ITEM: 065a	**BLOCK 3:** LM CABIN PRESSURE ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: CABIN PRESSURE ON

ITEM: 066	**BLOCK 3:** PRIME & BACK-UP COMPUTER
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: PRIME COMP ON STEP 3: BACK-UP COMPUTER ON STEP 4: SWITCH TO LM 3 STEP 5: CHECK COMPUTER DISPLAY READOUT

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 3
LM POWERUP & LOI

ITEM: 067	**BLOCK 3:** MAIN BREAKER CLOSED
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: MAIN BREAKER ON STEP 3: CHECK ELECTRICAL STATUS GAUGES

ITEM: 068	**BLOCK 3:** ENVIRONMENTAL CONTROL
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ECS ON STEP 3: CHECK CRYOGENICS GAUGES

ITEM: 069	**BLOCK 3:** INERTIAL MEASUREMENT UNIT
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: IMU ON

ITEM: 070	**BLOCK 3:** CAUTION AND WARNING ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: CAUTION/WARNING ON

ITEM: 071	**BLOCK 3:** GUIDANCE & NAVIGATION
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: GUIDANCE & NAVIGATION ON

ITEM: 072	**BLOCK 3:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 3

LM POWERUP & LOI

ITEM: 073	**BLOCK 3:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: SET GIMBAL ON STEP 3: SWITCH TO LM 3 STEP 4: SELECT GIMBAL RATES, CHECK DISPLAY

ITEM: 074	**BLOCK 3:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH TO PANEL CSM

ITEM: 075	**BLOCK 3:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 076	**BLOCK 3:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 077	**BLOCK 3:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK COMPUTER IGNITION STATUS

NOTE: IF RECEIVING POOR MCC RADIO TRANSMISSIONS REFER TO FLIGHT PLAN TO ACTIVATE LUNAR MODULE SYSTEMS

ITEM: 078	**BLOCK 3:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 079	**BLOCK 3:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 080	**BLOCK 3:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 081	**BLOCK 3:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 082	**BLOCK 3:** LM BATTERY ACTIVATION
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: BATTERY-A ON STEP 3: BATTERY-B ON STEP 4: BATTERY-C ON STEP 5: CHECK BATT A, B, & C GAUGES

NOTE: LM BATTERY POWER SHOULD BE CONSERVED. USE ONLY ESSENTIAL FLIGHT EQUIPMENT. POWER DOWN ALL SYSTEMS AND HEATERS THAT ARE NOT IN USE OR CRITICAL FOR LIFE SUPPORT.

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 3
LM POWERUP & LOI

ITEM: 083	**BLOCK 3:** LM FUEL SYSTEM ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: FUEL SYSTEM ON STEP 3: ENGINE HEATER ON

ITEM: 084	**BLOCK 3:** LM OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: OXIDIZER FLOW ON STEP 3: SELECT LM 2 STEP 4: CHECK OXID GAUGE

ITEM: 084a	**BLOCK 3:** LM HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: HYDRO FLOW ON STEP 3: SELECT LM 3 STEP 4: CHECK HYDRO GAUGE

ITEM: 085	**BLOCK 3:** DESCENT & RCS TANKS
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: DESCENT TANK OPEN STEP 3: RCS TANK OPEN STEP 4: SELECT LM 1 STEP 5: CHECK DESCENT & RCS GAUGES

NOTE: DO NOT PRE-ACTIVATE LM SYSTEMS BEFORE MCC TRANSMISSION CALLS. PREMATURE SYSTEM OR EQUIPMENT START UP MAY CAUSE MISSION FAILURE

ITEM: 087	**BLOCK 4:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK COMPUTER IGNITION STATUS

ITEM: 088	**BLOCK 4:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 089	**BLOCK 4:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 090	**BLOCK 4:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 091	**BLOCK 4:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

NOTE: ENGINE THRUST AND BURN DURATION SETTINGS MUST BE ACCURATE. ANY DEVIATION MAY CAUSE MISSION FAILURE.

ITEM: 092	**BLOCK 4:** MASTER ARM / AUTO SEQ. ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON STEP 3: AUTO SEQUENCE ON

ITEM: 093	**BLOCK 4:** LM RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 094	**BLOCK 4:** LM FUEL PUMP
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: FUEL PUMP ON

ITEM: 095	**BLOCK 4:** RCS ARM
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: RCS ON

ITEM: 096	**BLOCK 4:** DESCENT STAGE ARM
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: DESCENT STAGE ON

ITEM: 097	**BLOCK 4:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 098	**BLOCK 4:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 099	**BLOCK 4:** ENGINE BREAKER ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: ENGINE BREAKER ON

ITEM: 100	**BLOCK 4:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ARM JOYSTICK

ITEM: 101	**BLOCK 4:** HATCH CLOSED DOCK OFF
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: HATCH CLOSED (SWITCH ON) STEP 3: DOCK OFF (UNDOCK)

ITEM: 102	**BLOCK 4:** QUAD PORT STARB ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD PORT ON STEP 3: QUAD STARB ON

ITEM: 103	**BLOCK 4:** QUAD FWD / REV ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD FWD / REV ON

ITEM: 104	**BLOCK 4:** GEAR LOCK ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: LANDING GEAR LOCK

ITEM: 105	**BLOCK 4:** ABORT ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: ABORT ARM ON

ITEM: 106	**BLOCK 4:** PNGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: PNGS ON

ITEM: 107	**BLOCK 4:** HIGH BAND RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 108	**BLOCK 4:** AGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: AGS ON

ITEM: 109	**BLOCK 4:** MASTER ARM OFF / RCS OFF
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ARM OFF STEP 3: RCS OFF

Check all electrical gauges and cryo

tank pressures before beginning EVA procedures.

USE LANDING CUE CARD FOR VEHICLE SAFE PROCEEDURES.

Notify MCC regarding any anomalies.

LUNAR LIFTOFF / DOCKING SIMULATION

SECTION 4-1

JSC LUNAR GENERIC, REV G 7/7

APOLLO 18
TRAINING

FLIGHT PLAN **BLOCK 6**

LUNAR LIFTOFF & DOCKING

ITEM: 125	**BLOCK 6:** ASCENT TANK OPEN
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ASCENT TANK OPEN

ITEM: 126	**BLOCK 6:** FUEL PUMP ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: FUEL PUMP ON

ITEM: 127	**BLOCK 6:** ASCENT ENGINE / RCS ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: ASCENT ENGINE ARM STEP 3: RCS ON

ITEM: 128	**BLOCK 6:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 129	**BLOCK 6:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: SET GIMBAL ON

ITEM: 130	**BLOCK 6:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ARM JOYSTICK

ITEM: 131	**BLOCK 6:** QUAD PORT ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD PORT ON

ITEM: 132	**BLOCK 6:** QUAD STARB ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD STARB ON

ITEM: 133	**BLOCK 6:** QUAD FWD / REV ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD FWD / REV ON

ITEM: 134	**BLOCK 6:** OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: OXID FLOW ON

ITEM: 135	**BLOCK 6:** HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: HYDROGEN FLOW ON

ITEM: 136	**BLOCK 6:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: SET THRUST DURATION

ITEM: 137	**BLOCK 6:** SET ENGINE PERCENT
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: SET ENGINE THRUST

ITEM: 138	**BLOCK 6:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ENGINE ARM ON

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 6
LUNAR LIFTOFF & DOCKING

ITEM: 139	**BLOCK 6:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 140	**BLOCK 6:** PNGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: PNGS ON

ITEM: 141	**BLOCK 6:** LM RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 142	**BLOCK 6:** TARGET RATES ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: TARGET RATES ON

ITEM: 143	**BLOCK 6:** LOW BAND RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: LOW BAND ON

ITEM: 144	**BLOCK 6:** LM AUTO PILOT ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: AUTO PILOT ON

ITEM: 145	**BLOCK 6:** LM ALIGN SIGHT ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ALIGN SIGHT ON

ITEM: 146	**BLOCK 6:** ADJUST CABIN PRESSURE
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: DEPRESS CABIN PRESSURE

ITEM: 147	**BLOCK 6:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: DEPRESS PANEL CSM

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REENTRY SIMULATION

SECTION 5-1

JSC LUNAR GENERIC, REV G 7/7

APOLLO 18
TRAINING
FLIGHT PLAN
BLOCK 7
TEI & REENTRY

ITEM: 148	**BLOCK 7:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: CSM ON

ITEM: 149	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 150	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 151	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 152	**BLOCK 7:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS

ITEM: 153	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

ITEM: 154	**BLOCK 7:** ENABLE MAIN PUMP
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN PUMP ON

ITEM: 155	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 156	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 157	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 158	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 159	**BLOCK 7:** LM JETT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: LM JETT ON

ITEM: 160	**BLOCK 7:** A TANK & B TANK STIR
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A TANK STIR STEP 3: B TANK STIR

ITEM: 161	**BLOCK 7:** H 2-0 STIR
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: H 2-0 STIR ON

ITEM: 162	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 163	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 164	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 165	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 166	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 167	**BLOCK 7:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS

ITEM: 168	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

APOLLO 18
TRAINING
FLIGHT PLAN BLOCK 7
TEI & REENTRY

ITEM: 169	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 170	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 172	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 173	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 174	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 175	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 176	**BLOCK 7:** ARM SPS ENGINE & CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS STEP 3: ARM CSM RCS

ITEM: 177	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 178	**BLOCK 7:** BUS TIE-LINE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: BUS TIE-LINE ON

ITEM: 179	**BLOCK 7:** BATTERY A, B, C ENABLE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A BATTERY ON STEP 3: B BATTERY ON STEP 4: C BATTERY ON STEP 5: CHECK BATT GAUGES

ITEM: 180	**BLOCK 7:** MAIN A, B, C BUS ENABLE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A BUS ON STEP 3: B BUS ON STEP 4: C BUS ON STEP 5: MAIN BUS ON STEP 6: ALL ELECTRICAL GAUGES

ITEM: 181	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 182	**BLOCK 7:** SPS JETT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SPS JETT ON

ITEM: 183	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 184	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

ITEM: 185	**BLOCK 7:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: ARM JOYSTICK

ITEM: 186	**BLOCK 7:** ENTRY TRACK
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ENTRY TRACK ON

ITEM: 187	**BLOCK 7:** CSM AUTO PILOT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: AUTO PILOT ON

ITEM: 188	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 189	**BLOCK 7:** CHUTES DEPLOY
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CHUTES DEPLOY ON

ITEM: 190	**BLOCK 7:** WATER PACK / BEACON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: WATER PACK / BEACON ON

GENERAL CAUTION & WARNING

SECTION 6-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18

TRAINING

CAUTION & WARNING INDICATORS

ITEM:C101	BLOCK C&W.CSM 2: UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL INDICATORS STEP 3: CHECK BATTERY INDICATORS STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK MAIN BUS CSM 3 STEP 6. CHECK A, B, C BUS CSM 3 STEP 7: CHECK SPS DATA CSM 2 STEP 8: CHECK SYSTEM TEST CSM 2

ITEM:C102	BLOCK C&W.CSM 2: NAV FAULT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK GNCS RATES CSM 2 STEP 3: CHECK GIMBLE RATES CSM 2 STEP 4: CHECK AUTO PILOT CSM 2

ITEM:C103	BLOCK C&W.CSM 2: COMPUTER
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK UP COMPUTER ON CSM 2

ITEM:C104	BLOCK C&W.CSM 2: RADAR FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK RADAR DISPLAY CSM 2 STEP 3: CHECK RADAR SYSTEMS ON CSM 2 STEP 4: CHECK MAIN BUS CSM 3

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C105	BLOCK C&W.CSM 2: SYSTEM FIRE
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK ECS RATES CSM 2 STEP 3: CHECK SPS DATA CSM 2 STEP 4: CHECK COMPUTER STATUS CSM 2 STEP 5: CHECK FUEL CELL INDICATORS CSM 3 STEP 6: CHECK BATTERY INDICATORS CSM 3 STEP 7 CHECK MAIN BREAKER CSM 3 STEP 8: CHECK SPS BREAKER CSM 3

ITEM:C106	BLOCK C&W.CSM 2: LOGIC FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK-UP COMPUTER ON CSM 2

ITEM:C107	BLOCK C&W.CSM 2: ENGINE FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK COMPUTER STATUS CSM 2 STEP 4: CHECK FUEL GAUGE CSM 1 STEP 5: CHECK ENGINE BREAKER CSM 3 STEP 6: CHECK FUEL FLOW CSM 3 STEP 7: CHECK OXIDIZER FLOW CSM 3 STEP 8: CHECK HELIUM FLOW CSM 3 STEP 9: CHECK HELIUM GAUGE CSM 3 STEP 10: CHECK OXIDIZER GAUGE CSM 3 STEP 11: CHECK MAIN PUMP CSM 3

ITEM:C108	BLOCK C&W.CSM 2: FUEL LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL GAUGE CSM 1

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C109	BLOCK C&W.CSM 2: MEMORY FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK UP COMPUTER ON CSM 2

ITEM:C110	BLOCK C&W.CSM 2: 0-2 SYSTEM
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK 0-2 FLOW CSM 3 STEP 5: CHECK MAIN PUMP ON CSM 3 STEP 6: CHECK 0-2 PUMP ON CSM 3

ITEM:C111	BLOCK C&W.CSM 2: FUEL CELL 1 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 1 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 1 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C112	BLOCK C&W.CSM 2: RADIO FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK PRIME FREQUENCY CSM 3 STEP 5: CHECK SECOND FREQUENCY CSM 3 STEP 6: CHECK ANT. MAST ON CSM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C113	BLOCK C&W.CSM 2: RCS FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK RCS FUEL GAUGE CSM 1 STEP 3: CHECK COMP STATUS CSM 2 STEP 4: CHECK RCS FLOW CSM 3 STEP 5: CHECK MAIN PUMP ON CSM 3 STEP 6: CHECK ARM JOYSTICK ON CSM 2

ITEM:C114	BLOCK C&W.CSM 2: H2-0 SYSTEM
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK ECS RATES CSM 2 STEP 3: CHECK H2-0 PUMP CSM 3 STEP 4: CHECK H2-0 STIR CSM 3

ITEM:C115	BLOCK C&W.CSM 2: FUEL CELL 2 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 2 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 2 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C116	BLOCK C&W.CSM 2: S-BAND FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK PRIME FREQUENCY CSM 3 STEP 5: CHECK SECOND FREQUENCY CSM 3 STEP 6: CHECK ANT. MAST ON CSM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C117	BLOCK C&W.CSM 2: INVERTER FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK INVERTER CSM 3 STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK A, B, C, BUS CSM 3 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3 STEP 8: CHECK CSM BREAKER CSM 3 STEP 9: SPS BREAKER CSM 3 STEP10: CHECK ANT. MAST ON CSM 2

ITEM:C118	BLOCK C&W.CSM 2: MAIN PUMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK MAIN PUMP CSM 3 STEP 3: CHECK SPS DATA CSM 2 STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK CSM BREAKER CSM 3

ITEM:C119	BLOCK C&W.CSM 2: FUEL CELL 3 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 3 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 3 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C120	BLOCK C&W.CSM 2: TELEMETRY FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK ANT. MAST ON CSM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C121	BLOCK C&W.CSM 3: BATTERY A LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY A GAUGE CSM 3 STEP 3: CHECK BATTERY A ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 1 CSM 3

ITEM:C122	BLOCK C&W.CSM 3: BATTERY B LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY B GAUGE CSM 3 STEP 3: CHECK BATTERY B ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 2 CSM 3

ITEM:C123	BLOCK C&W.CSM 3: BATTERY C LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY C GAUGE CSM 3 STEP 3: CHECK BATTERY C ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 3 CSM 3

ITEM:C124	BLOCK C&W.CSM 3: HELIUM LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK HELIUM GAUGE CSM 3 STEP 3: CHECK HELIUM FLOW ON CSM 3 STEP 4: CHECK SPS DATA DISPLAY CSM 2 STEP 5: CHECK ECS RATES CSM 2

ITEM:C125	BLOCK C&W.CSM 3: OXIDIZER LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK OXIDIZER GAUGE CSM 3 STEP 3: CHECK OXIDIZER FLOW ON CSM 3 STEP 4: CHECK SPS DATA DISPLAY CSM 2 STEP 5: CHECK ECS RATES CSM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C126	BLOCK C&W.CSM 3: FUEL CELL 1 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 1 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 1 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C127	BLOCK C&W.CSM 3: FUEL CELL 2 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 2 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 2 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C128	BLOCK C&W.CSM 3: FUEL CELL 3 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 3 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 3 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C129	BLOCK C&W.CSM 3: A BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK A BUS ON CSM 3 STEP 3: CHECK FUEL CELL 1 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS

ITEM:C130	BLOCK C&W.CSM 3: B BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK B BUS ON CSM 3 STEP 3: CHECK FUEL CELL 2 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C131	BLOCK C&W.CSM 3: C BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK C BUS ON CSM 3 STEP 3: CHECK FUEL CELL 3 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C132	BLOCK C&W.CSM 3: TEMPATURE HIGH
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA DISPLAY CSM 2 STEP 3: CHECK ECS RATES CSM 2

LUNAR MODULE
CAUTION & WARNING

SECTION 7-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18

TRAINING

CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C133	BLOCK C&W.LM1: UNDERVOLT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK A BUS ON LM 3 STEP 3: CHECK B BUS ON LM 3 STEP 4: CHECK BATTERY A, B, ON LM 3 STEP 5: CHECK INVERTER ON LM 3 STEP 6: CHECK COMPUTER STATUS LM 3 STEP 7: CHECK AMPS GAUGE LM 3 STEP 8: CHECK VOLTS GAUGE LM 3 STEP 9: CHECK DC GAUGE LM 3

ITEM:C134	BLOCK C&W.LM 1: NAV FAULT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK ASCENT OR DESCENT RATES LM 3 STEP 3: CHECK GIMBLE RATES LM 3 STEP 4: CHECK G/N LM 2

ITEM:C135	BLOCK C&W.LM 1: COMPUTER
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CHECK PRIME COMPUTER ON LM 2 STEP 4: CHECK BACK UP COMPUTER ON LM2 STEP 5: CHECK AUTO PILOT LM 3

ITEM:C136	BLOCK C&W.LM 1: 801 ALARM
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CHECK IMU ON LM 2 STEP 4: CHECK G/N ON LM2 STEP 5: CHECK RADAR ON LM 2 STEP 6: SELECT HIGH OR LOW BAND RADAR LM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C137	BLOCK C&W.LM 2: BATTERY A LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY A GAUGE LM 3 STEP 3: CHECK BATTERY A ON LM 3 STEP 4: CHECK A BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C138	BLOCK C&W.LM 2: BATTERY B LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY B GAUGE LM 3 STEP 3: CHECK BATTERY B ON LM 3 STEP 4: CHECK B BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C139	BLOCK C&W.LM 2: BATTERY C LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY C GAUGE LM 3 STEP 3: CHECK BATTERY C ON LM 3 STEP 4: CHECK C BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C140	BLOCK C&W.LM 2: FUEL PUMP
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK FUEL PUMP CSM 2 STEP 3: CHECK FUEL SYSTEM LM 3 STEP 4: CHECK FUEL GAUGES LM 1 STEP 5: CHECK ALL FUEL TANKS LM 3

ITEM:C141	BLOCK C&W.LM 2: RCS FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK FUEL PUMP CSM 2 STEP 3: CHECK RCS FUEL TANK LM 2

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C142	BLOCK C&W.LM 2: MAIN BUS FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK MAIN BUS LM 3 STEP 3: CHECK MAIN BREAKER ON LM 3 STEP 4: CHECK A, B, C BUS LM 3 STEP 5: CHECK LM SYSTEM ON LM 3

ITEM:C143	BLOCK C&W.LM 2: TELEMETRY FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK RADIO SYSTEM ON LM 2 STEP 3: CHECK S-BAND SYSTEM ON LM 3

ITEM:C144	BLOCK C&W.LM 2: SYSTEM FIRE
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMP STATUS LM 3 STEP 3: CHECK CAUTION & WARNING LM 1 & LM 2

ITEM:C145	BLOCK C&W.LM 2: AUTO PILOT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMP STATUS LM 3 STEP 3: CHECK G/N LM 2 STEP 4: CHECK PGNS ON LM 3 STEP 5: CHECK AGS ON LM 3 STEP 6: CHECK AUTO PILOT LM 3

ITEM:C146	BLOCK C&W.LM 2: CABIN PRESS
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK CABIN PRESS ON LM 2 STEP 3: CHECK O-2 GAUGE LM 2 STEP 4: CHECK COMP STATUS LM 3

APOLLO 18
TRAINING
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C147	BLOCK C&W.LM 2: RADIO FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK RADIO SYSTEM ON LM 3 STEP 3: CHECK S-BAND LM 3 STEP 4: CHECK COMP STATUS LM 3

ITEM:C148	BLOCK C&W.LM 2: 0-2 SYSTEM
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK CABIN PRESS ON LM 2 STEP 3: CHECK 0-2 GAUGE LM 2 STEP 4: CHECK 0-2 FLOW ON LM 3

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COMMAND MODULE / LUNAR MODULE SOLUTIONS

SECTION 8-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18

TRAINING

COMMAND MODULE SOLUTIONS

ITEM:P501	BLOCK: SATURN S-1C ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-1C FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P502	BLOCK: SATURN S-II ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-II FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P503	BLOCK: SATURN S-4B ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-4B FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P504	BLOCK: SYSTEM FIRE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CONSULT MCC STEP 5: MAIN BREAKER OFF CSM 3 STEP 6: MAIN BUS OFF CSM 3

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P505	BLOCK: ASCENT TRACK FAULT
	STEP 1: CHECK MASTER ALARM & C&W CSM 2 STEP 2: CHECK ASCENT TRACK DATA CSM 1 STEP 3: CHECK SLOPE INDICATOR CSM 1 STEP 4: CHECK GIMBAL RATES CSM 2 STEP 5: CHECK 8 BALL CSM 1 STEP 6: ARM JOYSTICK CSM 2 STEP 7: MANUAL FIRE CSM 1 STEP 8: MONITOR SLOPE TRACK CSM 3

ITEM:P506	BLOCK: S-1C JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-1C JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P507	BLOCK: S-2 JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-2 JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P508	BLOCK: S-4B JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-4B JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P509	BLOCK: LES JETTISON
	STEP 1: CHECK COMPUTER STATUS CSM 2 STEP 2: CONFIRM WITH MCC STEP 3: LAUNCH ESCAPE ON CSM 1

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P510	BLOCK: FUEL CELL 1 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS ON CSM 3 STEP 5: FUEL CELL 1 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 1 GAUGE CSM 3

ITEM:P511	BLOCK: TWO FUEL CELL SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: B BUS OFF CSM 3 STEP 4: A BUS ON CSM 3 STEP 5: FUEL CELL 2 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 2 GAUGE CSM 3

ITEM:P512	BLOCK: FUEL CELL 3 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: C BUS OFF CSM 3 STEP 4: A BUS ON CSM 3 STEP 5: FUEL CELL 3 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 3 GAUGE CSM 3

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P513	BLOCK: FUEL CELL 1 & 2 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: FUEL CELL 1 OFF CSM 3 STEP 7: FUEL CELL 2 OFF CSM 3 STEP 8: CHECK ECS RATES CSM 2 STEP 9: CHECK CELL 1& 2 GAUGE CSM 3 STEP 10: CHECK DC GAUGE STEP 11: CHECK CELL 1& 2 GAUGE CSM 3

ITEM:P514	BLOCK: FUEL CELL 1, 2 & 3 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS OFF CSM 3 STEP 6: FUEL CELL 1 OFF CSM 3 STEP 7: FUEL CELL 2 OFF CSM 3 STEP 8: FUEL CELL 3 OFF CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK CELL 1, 2, & 3 GAUGES CSM 3 STEP 11: CHECK BATT 1, 2, & 3 GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

ITEM:P515	BLOCK: IMU FAIL
	STEP 1: CHECK GNCS DATA CSM 2 STEP 2: IMU OFF CSM 2 STEP 3: EXTERNAL CAMERA ON CSM 2 STEP 4: STAR FINDER ON CSM 2 STEP 5: RCS OR MAIN SPS ON STEP 6: ARM JOYSTICK ON STEP 7: USE RCS/SPS THRUST TO ALIGN COURSE

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P516	BLOCK: S-4B ENGINE FAIL
	STEP 1: CHECK GNCS DATA CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK S-4B FUEL GAUGE CSM 2 STEP 4: ARM S1C, S2, S4B CSM 1 STEP 5: MANUAL FIRE ON CSM 1 STEP 6: IF ENGINE FAILS (ABORT MISSION) STEP 7: S4B JETT ON STEP 8: SEE MISSION ABORT BLOCK TLI

ITEM:P517	BLOCK: COMPUTER FAIL
	STEP 1: CHECK COMPUTER STATUS CSM 2 STEP 2: PRIME COMPUTER RESET OFF/ON CSM 2 STEP 3: (IF RESET FAILS) PRIME COMP OFF CSM 2 STEP 4: BACK-UP COMPUTER OFF/ON CSM 2 STEP 5: (IF RESET FAILS) BK-UP COMP OFF STEP 6: CONSULT MCC

ITEM:P518	BLOCK: RCS FAIL
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK RCS FUEL GAUGE CSM 1 STEP 4: RESET RCS FUEL FLOW CSM 3 STEP 5: RESET ARM JOYSTICK CSM 2 STEP 6: CONSULT MCC

ITEM:P519	BLOCK: SPS ENGINE FAIL
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK SPS FUEL GAUGE CSM 1 STEP 4: RESET FUEL FLOW CSM 3 STEP 5: RESET ENGINE BREAKER CSM 3 STEP 6: RESET MAIN SPS ENGINE CSM 1 STEP 7: CONSULT MCC

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P520	BLOCK: 8 BALL FAILURE
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK GNCS RATES CSM 2 STEP 3: RESET IMU SYSTEM CSM 2 STEP 4: CONSULT MCC

ITEM:P521	BLOCK: BATTERY A SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS ON CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: BATTERY A OFF CSM 3 STEP 7: BATTERY B ON CSM 3 STEP 8: BATTERY C ON CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT 1 GAUGE CSM 3 STEP 11: CHECK BATT 2 & 3 GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

ITEM:P523	BLOCK: BATTERY B SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS ON CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: BATTERY A ON CSM 3 STEP 7: BATTERY B OFF CSM 3 STEP 8: BATTERY C ON CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT B GAUGE CSM 3 STEP 11: CHECK BATT A & C GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P524	BLOCK: BATTERY C SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES)
	STEP 2: BUS TIE-LINE ON CSM 3
	STEP 3: A BUS ON CSM 3
	STEP 4: B BUS ON CSM 3
	STEP 5: C BUS OFF CSM 3
	STEP 6: BATTERY A ON CSM 3
	STEP 7: BATTERY B ON CSM 3
	STEP 8: BATTERY C OFF CSM 3
	STEP 9: CHECK ECS RATES CSM 2
	STEP 10: CHECK BATT C GAUGE CSM 3
	STEP 11: CHECK BATT A & B GAUGES CSM 3
	STEP 12: CHECK DC GAUGE CSM 3

ITEM:P525	BLOCK: BATTERY A, B & C SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES)
	STEP 2: BUS TIE-LINE ON CSM 3
	STEP 3: A BUS OFF CSM 3
	STEP 4: B BUS OFF CSM 3
	STEP 5: C BUS OFF CSM 3
	STEP 6: BATTERY A OFF CSM 3
	STEP 7: BATTERY B OFF CSM 3
	STEP 8: BATTERY C OFF CSM 3
	STEP 9: CHECK ECS RATES CSM 2
	STEP 10: CHECK BATT A, B & C GAUGES
	STEP 11: START BACK-UP BATT (see item p526)
	STEP 12: CHECK DC GAUGE CSM 3

ITEM:P526	BLOCK: BACK-UP BATTERY
	STEP 1: CHECK SPS STATUS CSM 2
	STEP 2: MAIN BUS TIE-LINE ON CSM 3
	STEP 3: A, B, C BUS ON CSM 3
	STEP 4: BK-UP BATT ON CSM 2
	STEP 5: CHECK DC GAUGE CSM 3
	STEP 6: CONSULT MCC

APOLLO 18
TRAINING
COMMAND MODULE SOLUTIONS

ITEM:P527	BLOCK: CSM SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON CSM 2 STEP 2: CSM SYSTEM (RESTART) CSM 2 STEP 3: DATA DISPLAY ON CSM 2 STEP 4: RADIO SYSTEM (RESET) CSM 2 STEP 5: BATTERY (RESTART) (see BLOCK 1) STEP 6: CSM BREAKER (RESET) CSM 3 STEP 7: ECS SYSTEM (RESTART) CSM 2 STEP 8: CONSULT MCC

ITEM:P528	BLOCK: COMPUTER DISPLAY FAILURE
	STEP 1: CHECK COMP STATUS CSM 2 STEP 2: PRIME COMPUTER (RESTART) CSM 2 STEP 3: BACK-UP COMPUTER (RESTART) CSM 2 STEP 4: CSM SYSTEM (RESET) CSM 3 STEP 5: CONSULT MCC

ITEM:P528	BLOCK: ENGINE HEATER FAIL
	STEP 1: CHECK SPS DATA CSM 2 STEP 2: ENGINE HEATER (RESTART) CSM 2 STEP 3: ROLL CSM PROGRAM (4 RVS PER MIN.) STEP 4: STIR H-20 TANKS STEP 5: STIR A & B TANKS CSM 3 STEP 6: CONSULT MCC

ITEM:P529	BLOCK: SPS SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON CSM 2 STEP 2: CSM SYSTEM (RESTART) CSM 2 STEP 3: DATA DISPLAY ON CSM 2 STEP 4: RADIO SYSTEM (RESET) CSM 2 STEP 5: BATTERY (RESTART) (see BLOCK 1) STEP 6: SPS BREAKER (RESET) CSM 3 STEP 7: ECS SYSTEM (RESTART) CSM 2 STEP 8: CONSULT MCC

APOLLO 18
TRAINING
LUNAR MODULE SOLUTIONS

ITEM:P601	BLOCK: LM DESCENT ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK LM DESCENT ENGINE STATUS LM 1 STEP 3: CHECK GIMBAL RATES LM 3 STEP 4: (RESET) ENGINE BREAKER LM 3 STEP 5: CHECK DESCENT FUEL GUAGE LM 1 STEP 6: RESTART FUEL PUMP LM 3 STEP 7: (RESET) FUEL SYSTEM LM 3 STEP 8: CONSULT MCC STEP 9: IF FAILURE CONTINUES, ABORT LANDING

ITEM:P602	BLOCK: LM ASCENT ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK LM ASCENT ENGINE STATUS LM 1 STEP 3: CHECK GIMBAL RATES LM 3 STEP 4: (RESET) ENGINE BREAKER LM 3 STEP 5: CHECK ASCENT FUEL GUAGE LM 1 STEP 6: RESTART FUEL PUMP LM 3 STEP 7: (RESET) FUEL SYSTEM LM 3 STEP 8: CONSULT MCC

ITEM:P603	BLOCK: ENGINE HEATER FAIL
	STEP 1: CHECK COMP STATUS LM 3 STEP 2: ENGINE HEATER (RESTART) LM 3 STEP 3: (RESET) LM SYSTEM LM 3 STEP 4: TANK STIR LM 3 STEP 5: CONSULT MCC

ITEM:P604	BLOCK: LM SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON LM 3 STEP 2: LM SYSTEM (RESTART) LM 3 STEP 3: RADIO SYSTEM (RESET) LM 3 STEP 4: BATTERY (RESTART) (see BLOCK 3) STEP 5: MAIN BREAKER (RESET) LM 3 STEP 6: CONSULT MCC

APOLLO 18
TRAINING
LUNAR MODULE SOLUTIONS

ITEM:P605	BLOCK: 8 BALL FAILURE
	STEP 1: CHECK COMP STATUS LM 3 STEP 2: CHECK ASCENT/DESCENT RATES LM 3 STEP 3: (RESET) IMU SYSTEM LM 2 STEP 4: CONSULT MCC

ITEM:P606	BLOCK: BATTERY A SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: MAIN BUS TIE-LINE ON LM 3 STEP 3: A BUS OFF LM 3 STEP 4: B BUS ON LM 3 STEP 5: C BUS ON LM 3 STEP 6: BATTERY A OFF LM 3 STEP 7: BATTERY B ON LM 3 STEP 8: BATTERY C ON LM 3 STEP 9: CHECK VOLTS GAUGE LM 3 STEP 10: CHECK BATT A GAUGE LM 3 STEP 11: CHECK BATT B & C GAUGES LM 3 STEP 12: CHECK DC GAUGE LM 3

ITEM:P607	BLOCK: BATTERY B SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: MAIN BUS TIE-LINE ON LM 3 STEP 3: A BUS OFF LM 3 STEP 4: B BUS ON LM 3 STEP 5: C BUS ON LM 3 STEP 6: BATTERY A ON LM 3 STEP 7: BATTERY B OFF LM 3 STEP 8: BATTERY C ON LM 3 STEP 9: CHECK VOLTS GAUGE LM 3 STEP 10: CHECK BATT B GAUGE LM 3 STEP 11: CHECK BATT A & C GAUGES LM 3 STEP 12: CHECK DC GAUGE LM 3

APOLLO 18
TRAINING
LUNAR MODULE SOLUTIONS

ITEM:P608	BLOCK: BATTERY C SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3
	STEP 2: MAIN BUS TIE-LINE ON LM 3
	STEP 3: A BUS ON LM 3
	STEP 4: B BUS ON LM 3
	STEP 5: C BUS OFF LM 3
	STEP 6: BATTERY A ON LM 3
	STEP 7: BATTERY B ON LM 3
	STEP 8: BATTERY C OFF LM 3
	STEP 9: CHECK VOLTS GAUGE LM 3
	STEP 10: CHECK BATT C GAUGE LM 3
	STEP 11: CHECK BATT A & B GAUGES LM 3
	STEP 12: CHECK DC GAUGE LM 3

ITEM:P609	BLOCK: BATTERY A, B & C SHUT DOWN
	STEP 1: CHECK COMP STATUS LM 3
	STEP 2: MAIN BUS TIE-LINE ON CSM 3
	STEP 3: A BUS OFF LM 3
	STEP 4: B BUS OFF LM 3
	STEP 5: C BUS OFF LM 3
	STEP 6: BATTERY A OFF LM 3
	STEP 7: BATTERY B OFF LM 3
	STEP 8: BATTERY C OFF LM 3
	STEP 9: CHECK VOLTS GAUGE LM 3
	STEP 10: CHECK BATT A, B & C GAUGES
	STEP 11: START BACK-UP BATT (see item p.610)
	STEP 12: CHECK DC GAUGE LM 3

ITEM:P610	BLOCK: BACK-UP BATTERY
	STEP 1: CHECK COMP STATUS CSM 2
	STEP 2: BK-BATT ON LM 3
	STEP 3: MN BUS TIE-LINE ON LM 3
	STEP 4: A, B, C BUS ON LM 3
	STEP 5: CHECK DC GAUGE LM 3
	STEP 6: CONSULT MCC

APOLLO 18
TRAINING
LUNAR MODULE SOLUTIONS

ITEM:P611	BLOCK: COMPUTER FAIL
	STEP 1: CHECK COMPUTER STATUS LM 2 STEP 2: PRIME COMPUTER RESET OFF/ON LM 2 STEP 3: (IF RESET FAILS) PRIME COMP OFF LM 2 STEP 4: BACK-UP COMPUTER OFF/ON LM 2 STEP 5: (IF RESET FAILS) BK-UP COMP OFF STEP 6: CONSULT MCC

ITEM:P612	BLOCK: RCS FAIL
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: CHECK RCS FUEL GAUGE LM 1 STEP 3: RESET RCS TANK LM 2 STEP 4: RESET ARM JOYSTICK LM 2 STEP 5: CONSULT MCC

ITEM:P613	BLOCK: SYSTEM FIRE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CONSULT MCC STEP 4: MAIN BREAKER OFF LM 3 STEP 5: MAIN BUS OFF LM 3

ITEM:P614	BLOCK: NO LANDING GEAR LOCK
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: (RESET) GEAR LOCK LM 2 STEP 3: CONSULT MCC STEP 4: (RECYCLE) MAIN BUS LM 3 STEP 5: CONSULT MCC

ITEM:P615	BLOCK: LOW RCS (ASCENT) FUEL
	STEP 2: RCS TANK OPEN LM 2 STEP 3: RCS TIE-LINE ON LM 2 STEP 4: (RESTART) MAIN FUEL PUMP LM 2

CUE CARDS
(TRAINING)

SECTION 9-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TRAINING
SAT. V LAUNCH SEQUENCE CUE CARD

EVENT	TIME
1. S-1C ENGINE IGNITION	MINUS 05
2. ALL ENGINES RUNNING	+ 0 SEC
3. FIRST MOTION	+ 1 SEC
4. LIFTOFF	+ 3 SEC
5. TOWER CLEAR	+ 5 SEC
6. HOUSTON CONTROLS	+ 6 SEC
7. ROLL PROGRAM	+ 7 SEC
8. PITCH PROGRAM	+ 10 SEC
9. MAXIMUM DYNAMIC PRESSURE	+ 25 SEC
10. S1-C ENGINE SHUTDOWN	+125 SEC
11. S1-C STAGE SEPARATION	+148 SEC
12. S-II IGNITION	+150 SEC
13. S-II ENGINE SHUTDOWN	+225 SEC
14. S-II SEPARATION	+227 SEC
15. S-4B IGNITION	+230 SEC
16. S-4B 1ST CUTOFF	+315 SEC
17. EARTH ORBIT	+320 SEC

NOTE: ALL EVENTS ARE BOTH ONBOARD COMPUTER ASSISTED AND / OR MANUALLY ACCOMPLISHED.

LISTEN FOR MISSION CONTROL CUES AND AUDIO ALERTS.

APOLLO 18
TRAINING
LUNAR LANDING CUE CARD

EVENT	TIME
1. RCS THRUST AWAY FROM CSM	- 260 SEC
2. LM DESCENT ENGINE IGNITION	- 250 SEC
3. LM RADAR ON	- 240 SEC
4. ABORT GUIDANCE ON	- 230 SEC
5. POWER DESCENT INSERTION	- 220 SEC
6. HIGH GATE COMPUTER PHASE	- 200 SEC
7. LOW GATE COMPUTER PHASE	- 160 SEC
8. PITCHOVER COMPUTER PHASE	- 120 SEC
9. MANUAL RCS CONTROL	- 50 SEC
10. CONTACT LIGHT	- 10 SEC
11. TOUCHDOWN	- 0 SEC

NOTE: LUNAR MODULE PRIME COMPUTER SYSTEM WILL HANDLE PDI PHASE, PROVIDING PROPER GIMBAL ANGLES HAVE BEEN ENTERED.

MANUAL CONTROL IS RELEASED TO PILOT AFTER PITCHOVER PHASE AT THE 1000 FOOT ALTITUDE. LISTEN FOR ALIGN SIGHT MCC CALL

LUNAR MODULE PILOT MUST LAND SPACECRAFT BEFORE DESCENT FUEL REACHES 20 POUNDS, OR AGS WILL

AUTO ABORT LANDING.

LM MUST LAND WITHIN 20 FEET OF RTT 301

APOLLO 18
TRAINING
LUNAR LIFTOFF CUE CARD

EVENT	TIME
1. ASCENT TANK ENABLE	- 135 SEC
2. FUEL PUMP ENABLE	- 125 SEC
3. RCS TANK ENABLE	- 120 SEC
4. ASCENT ENGINE ARM	- 110 SEC
5. ENTER GIMBAL DATA	- 105 SEC
6. SET GIMBAL	- 50 SEC
7. SET THRUST DURATION	- 40 SEC
8. SET THRUST PERCENTAGE	- 30 SEC
9. MASTER ARM	- 20 SEC
10. AUTO SEQ	- 10 SEC
11. ASCENT ENGINE IGNITION	- 2 SEC
12. LIFTOFF	- 0 SEC
13. PITCHOVER PHASE	+ 20 SEC
14. LOW GATE PHASE	+ 20 SEC
15. HIGH GATE PHASE	+ 20 SEC
16. ASCENT ENGINE CUTOFF	+225 SEC
17. RCS THRUST & CSM DOCK	+305 SEC
18. CSM LM DOCK	+400 SEC

APOLLO 18
TRAINING
SPS ENGINE BURN CUE CARD

EVENT	TIME
1. ENGINE BREAKER ENABLE	- 135 SEC
2. ENTER GIMBAL DATA	- 135 SEC
3. SET GIMBAL ANGLE	- 135 SEC
4. ENTER THRUST PERCENTAGE	- 135 SEC
5. SET THRUST DURATION	- 135 SEC
6 ARM SPS ENGINE	- 135 SEC
7. MASTER ARM ON	- 135 SEC
8. AUTO SEQUENCE ENABLE	- 135 SEC
9. IGNITION	- 135 SEC
10. MONITOR SPS DATA (CSM 2)	- 135 SEC
11. MONITOR SPS FUEL RESERVES	- 135 SEC
12. SPS ENGINE CUTOFF	- 135 SEC
13. CHECK GIMBAL ANGLES	- 135 SEC
14. CHECK STAR FINDER SYSTEM	- 135 SEC

NOTE: ALL CUE CARD ENGINE BURN

PROCEDURES ARE FOR REFERENCE ONLY!

ALWAYS FOLLOW MCC RADIO CALLS AND DIRECTIONS.

CHECK ELECTRICAL OUTPUT DURING

ALL SPS ENGINE FIRINGS.

WITH AUTO SEQUENCE, NEVER ALLOW PRIME COMPUTER TO REBOOT.

APOLLO 18
TAURUS LITTROW
FLIGHT PLAN

SECTION 10-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18

TAURUS LITTROW

FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 001	BLOCK 1: RADIO FREQUENCY SETTINGS
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SET PRIMARY FREQUENCY STEP 3: SET PRIMARY CHANNEL

ITEM: 002	BLOCK 1: RADIO FREQUENCY SETTINGS
	STEP 1: SET SECONDARY FREQUENCY STEP 2: SET SECONDARY CHANNEL STEP 3: VOICE CHECK

ITEM: 003	BLOCK 1: COMMAND MODULE SYSTEM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CSM SYSTEM ON STEP 3: DATA DISPLAY ON STEP 4: COMPUTER DISPLAY ON

ITEM: 004	BLOCK 1: INERTIAL MEASUREMENT UNIT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: IMU ON

ITEM: 005	BLOCK 1: PRIME COMPUTER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: PRIME COMP ON STEP 3: CHECK COMPUTER DISPLAY READOUT

ITEM: 006	BLOCK 1:GUIDANCE NAVIGATION CONTROL
	STEP 1: SWITCH TO PANEL CSM 2 ;STEP 2: GNCS ON STEP 3: CHECK GNCS RATES DISPLAY READOUT

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN **BLOCK 1 LAUNCH**

ITEM: 007	BLOCK 1: FUEL CELL ACTIVATION
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: FUEL CELL-1 ON STEP 3: FUEL CELL-2 ON STEP 4: FUEL CELL-3 ON STEP 5: CHECK ALL FUEL CELL GAUGES

ITEM: 008	BLOCK 1: FUEL FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: FUEL FLOW ON STEP 3: SWITCH TO CSM 1, CHECK FUEL READOUT

ITEM: 009	BLOCK 1: OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: OXID FLOW ON STEP 3: CHECK OXID GAUGE

ITEM: 010	BLOCK 1: MAIN PUMP ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN PUMP ON

ITEM: 011	BLOCK 1: HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: HYDRO FLOW ON STEP 3: CHECK HYDRO GAUGE

ITEM: 012	BLOCK 1: INVERTER ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: INVERTER ON

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FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 013	**BLOCK 1:** BATTERIES A, B, C ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: BATTERY A,B,C ON STEP 3: CHECK GAUGES: BATT. A,B,C

ITEM: 014	**BLOCK 1:** OXYGEN FLOW
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: 0-2 FLOW ON STEP 3: CHECK 0-2 GAUGE

ITEM: 015	**BLOCK 1:** BACK-UP COMPUTER ON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: BACK-UP COMPUTER ON STEP 3: CHECK COMPUTER STATUS / CSM 2

ITEM: 016	**BLOCK 1:** MAIN, A, C ELEC. BUS ON
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN BUS ON STEP 3: A BUS ON STEP 4: C BUS ON STEP 5: CHECK AMPS GAUGE STEP 6: CHECK AC GAUGE STEP 7: SWITCH TO CSM 2: CHECK SPS DISPLAY

NOTE: B BUS CIRCUIT IS DEFAULTED ON LAUNCH PAD. POWER IS CONNECTED UNTIL ITEM 22, EVENT ONE IS COMPLETED.

APOLLO 18
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FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 019	**BLOCK 1:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH DISPLAY TO GIMBAL RATES STEP 3: ENTER X-RATE DATA STEP 4: ENTER Y-RATE DATA STEP 5: CHECK GIMBAL RATES: CSM 2 DISPLAY

ITEM: 020	**BLOCK 1:** SET GIMBAL
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 021	**BLOCK 1:** MAIN BREAKER CLOSED
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN BREAKER ON STEP 3: CHECK AC & DC GAUGES

ITEM: 022	**BLOCK 1:** INTERNAL POWER SWITCH
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: INT POWER ON STEP 3: SWITCH TO CSM 3 STEP 4: CHECK AC, DC & FUEL CELL 1,2,3 GAUGES

ITEM: 023	**BLOCK 1:** CAUTION AND WARNING ON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CAUTION/WARNING ON

ITEM: 024	**BLOCK 1:** SATURN S1, S2, S4B ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SATURN S1, S2, S4B ON

APOLLO 18
TAURUS LITTROW
FLIGHT PLAN BLOCK 1 LAUNCH

ITEM: 025	**BLOCK 1:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 026	**BLOCK 1:** LAUNCH ESCAPE ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SAFETY OPEN STEP 3: ARM ABORT SYSTEM

ITEM: 027	**BLOCK 1:** AUTO SEQUENCE START
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 028	**BLOCK 1:** S-1C JETT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: S-1C JETT ON

ITEM: 029	**BLOCK 1:** LAUNCH ESCAPE JETTISON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: LES JETT ON

ITEM: 030	**BLOCK 1:** S-2 JETT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: S-2 JETT ON

APOLLO 18
TAURUS LITTROW
FLIGHT PLAN BLOCK 2 TLI

ITEM: 031	**BLOCK 1:** DEPLOY ANTENNA MAST
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: DEPLOY ANTENNA MAST STEP 3: SWITCH TO CSM 3 STEP 4: CHECK PRIMARY & SECONDARY FREQ.

ITEM: 032	**BLOCK 2:** TLI ENGINE GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH DISPLAY TO GIMBAL RATES STEP 3: ENTER X-RATE DATA STEP 4: ENTER Y-RATE DATA STEP 5: CHECK GNCS RATES DISPLAY

ITEM: 033	**BLOCK 2:** SET GIMBAL DATA
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 034	**BLOCK 2:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 035	**BLOCK 2:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

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TAURUS LITTROW
FLIGHT PLAN BLOCK 2 TLI

ITEM: 036	**BLOCK 2:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 037	**BLOCK 2:** ARM S-4B
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM S-4B

ITEM: 038	**BLOCK 2:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 042	**BLOCK 2:** ENABLE MAIN PUMP
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SWITCH MAIN PUMP ON

ITEM: 043	**BLOCK 2:** ENABLE FUEL FLOW
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: SWITCH FUEL FLOW ON STEP 3: CHECK ALL FUEL GAUGES

ITEM: 044	**BLOCK 2:** ENABLE RADAR SYSTEM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON RADAR SYSTEM STEP 3: SWITCH TO CSM 2 RADAR DISPLAY STEP 4: ACQUIRE S4-B TARGET

ITEM: 045	**BLOCK 2:** PYRO ARM S4-B
	STEP 1: SWITCH TO PANEL CSM 2
	STEP 2: OPEN SAFETY SHIELD
	STEP 3: PYRO ARM ON

ITEM: 046	**BLOCK 2:** S4-B JETTISON
	STEP 1: SWITCH TO PANEL CSM 1
	STEP 2: SWITCH S4-B JETT ON
	STEP 3: SWITCH TO PANEL CSM 2
	STEP 4: SWITCH ON EXT CAM
	STEP 5: CHECK FOR GOOD S4-B JETTISON

ITEM: 047	**BLOCK 2:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1
	STEP 2: SWITCH ON CSM RCS

ITEM: 048	**BLOCK 2:** ALIGN SIGHT ENABLE
	STEP 1: SWITCH TO PANEL CSM 2
	STEP 2: SWITCH ON ALIGN SIGHT
	STEP 3: CHECK DISPLAY FOR RADICAL ON

ITEM: 049	**BLOCK 2:** TARGET RATES ENABLE
	STEP 1: SWITCH TO PANEL CSM 2
	STEP 2: SWITCH ON TARGET RATE
	STEP 3: CHECK DISPLAY FOR LM TARGET

ITEM: 050	**BLOCK 2:** ARM JOYSTICK CONTROLLER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: ARM JOYSTICK ON STEP 3: CHECK HAND CONTROLLER STATUS STEP 4: SELECT CSM 3 / CHECK QUADS

ITEM: 051	**BLOCK 2:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK ENGINE IGNITION STATUS

ITEM: 053	**BLOCK 2:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT AND GIMBAL RATES STEP 3: ENTER GIMBAL RATES

ITEM: 054	**BLOCK 2:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SELECT SET GIMBAL BUTTON STEP 3: SELECT GIMBAL RATES, CHECK DISPLAY

ITEM: 055	**BLOCK 2:** STABILIZATION CONTROL
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SCS ON STEP 3: CHECK SPS DATA DISPLAY

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FLIGHT PLAN BLOCK 2 TLI

ITEM: 056	**BLOCK 2:** ENGINE HEATER
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SPS ENGINE HEATER ON STEP 3: CHECK SPS DATA DISPLAY

ITEM: 057	**BLOCK 2:** TANK HEATER
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: TANK HEATER ON STEP 3: SWITCH TO CSM 2 STEP 4: CHECK SPS DATA DISPLAY

ITEM: 058	**BLOCK 2:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 059	**BLOCK 2:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 059a	**BLOCK 2:** SET THRUST PERCENT
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST PERCENT

ITEM: 060	**BLOCK 2:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 061	**BLOCK 2:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

APOLLO 18
TAURUS LITTROW
FLIGHT PLAN BLOCK 3
LM POWERUP & LOI

ITEM: 062	**BLOCK 3:** LM HATCH OPEN
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: PANEL LM 1 ON

ITEM: 063	**BLOCK 3:** RADIO FREQUENCY SETTINGS
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: RADIO SYSTEM ON STEP 3: SET PRIMARY FREQUENCY STEP 4: SET PRIMARY CHANNEL

ITEM: 064	**BLOCK 3:** RADIO FREQUENCY SETTINGS
	STEP 1: SET SECONDARY FREQUENCY STEP 2: SET SECONDARY CHANNEL STEP 3: VOICE CHECK

ITEM: 065	**BLOCK 3:** LUNAR MODULE SYSTEM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: LM SYSTEM ON

ITEM: 065a	**BLOCK 3:** LM CABIN PRESSURE ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: CABIN PRESSURE ON

ITEM: 066	**BLOCK 3:** PRIME & BACK-UP COMPUTER
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: PRIME COMP ON STEP 3: BACK-UP COMPUTER ON STEP 4: SWITCH TO LM 3 STEP 5: CHECK COMPUTER DISPLAY READOUT

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN BLOCK 3

LM POWERUP & LOI

ITEM: 067	**BLOCK 3:** MAIN BREAKER CLOSED
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: MAIN BREAKER ON STEP 3: CHECK ELECTRICAL STATUS GAUGES

ITEM: 068	**BLOCK 3:** ENVIRONMENTAL CONTROL
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ECS ON STEP 3: CHECK CRYOGENICS GAUGES

ITEM: 069	**BLOCK 3:** INERTIAL MEASUREMENT UNIT
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: IMU ON

ITEM: 070	**BLOCK 3:** CAUTION AND WARNING ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: CAUTION/WARNING ON

ITEM: 071	**BLOCK 3:** GUIDANCE & NAVIGATION
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: GUIDANCE & NAVIGATION ON

ITEM: 072	**BLOCK 3:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN **BLOCK 3**

LM POWERUP & LOI

ITEM: 073	**BLOCK 3:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: SET GIMBAL ON STEP 3: SWITCH TO LM 3 STEP 4: SELECT GIMBAL RATES, CHECK DISPLAY

ITEM: 074	**BLOCK 3:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH TO PANEL CSM

ITEM: 075	**BLOCK 3:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 076	**BLOCK 3:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 077	**BLOCK 3:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK COMPUTER IGNITION STATUS

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN BLOCK 3

LM POWERUP & LOI

ITEM: 078	**BLOCK 3:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 079	**BLOCK 3:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 080	**BLOCK 3:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 081	**BLOCK 3:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 082	**BLOCK 3:** LM BATTERY ACTIVATION
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: BATTERY-A ON STEP 3: BATTERY-B ON STEP 4: BATTERY-C ON STEP 5: CHECK BATT A, B, & C GAUGES

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN

BLOCK 3
LM POWERUP & LOI

ITEM: 083	**BLOCK 3:** LM FUEL SYSTEM ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: FUEL SYSTEM ON STEP 3: ENGINE HEATER ON

ITEM: 084	**BLOCK 3:** LM OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: OXIDIZER FLOW ON STEP 3: SELECT LM 2 STEP 4: CHECK OXID GAUGE

ITEM: 084a	**BLOCK 3:** LM HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: HYDRO FLOW ON STEP 3: SELECT LM 3 STEP 4: CHECK HYDRO GAUGE

ITEM: 085	**BLOCK 3:** DESCENT & RCS TANKS
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: DESCENT TANK OPEN STEP 3: RCS TANK OPEN STEP 4: SELECT LM 1 STEP 5: CHECK DESCENT & RCS GAUGES

ITEM: 086	**BLOCK 3:** MAIN / A, B & B BUS
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: MAIN BUS ON STEP 3: A BUS ON STEP 4: B BUS ON STEP 5: C BUS ON

ITEM: 087	**BLOCK 4:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SWITCH ON MAIN SPS STEP 3: CHECK COMPUTER IGNITION STATUS

ITEM: 088	**BLOCK 4:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 089	**BLOCK 4:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 090	**BLOCK 4:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 091	**BLOCK 4:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

APOLLO 18
TAURUS LITTROW
FLIGHT PLAN BLOCK 4
LUNAR ORBIT & LANDING

ITEM: 092	**BLOCK 4:** MASTER ARM / AUTO SEQ. ON
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON STEP 3: AUTO SEQUENCE ON

ITEM: 093	**BLOCK 4:** LM RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 094	**BLOCK 4:** LM FUEL PUMP
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: FUEL PUMP ON

ITEM: 095	**BLOCK 4:** RCS ARM
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: RCS ON

ITEM: 096	**BLOCK 4:** DESCENT STAGE ARM
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: DESCENT STAGE ON

ITEM: 097	**BLOCK 4:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 098	**BLOCK 4:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 099	**BLOCK 4:** ENGINE BREAKER ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: ENGINE BREAKER ON

ITEM: 100	**BLOCK 4:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ARM JOYSTICK

ITEM: 101	**BLOCK 4:** HATCH CLOSED DOCK OFF
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: HATCH CLOSED (SWITCH ON) STEP 3: DOCK OFF (UNDOCK)

ITEM: 102	**BLOCK 4:** QUAD PORT STARB ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD PORT ON STEP 3: QUAD STARB ON

ITEM: 103	**BLOCK 4:** QUAD FWD / REV ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD FWD / REV ON

ITEM: 104	**BLOCK 4:** GEAR LOCK ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: LANDING GEAR LOCK

APOLLO 18
TAURUS LITTROW

FLIGHT PLAN BLOCK 4

LUNAR ORBIT & LANDING

ITEM: 105	**BLOCK 4:** ABORT ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: ABORT ARM ON

ITEM: 106	**BLOCK 4:** PNGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: PNGS ON

ITEM: 107	**BLOCK 4:** HIGH BAND RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 108	**BLOCK 4:** AGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: AGS ON

ITEM: 109	**BLOCK 4:** MASTER ARM OFF / RCS OFF
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ARM OFF STEP 3: RCS OFF

Check all electrical gauges and cryo tank pressures before beginning EVA procedures.

Notify MCC regarding any anomalies.

FOR LM POWER DOWN SEE POST LANDING CUE CARD.

ITEM: 125	**BLOCK 6:** ASCENT TANK OPEN
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ASCENT TANK OPEN

ITEM: 126	**BLOCK 6:** FUEL PUMP ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: FUEL PUMP ON

ITEM: 127	**BLOCK 6:** ASCENT ENGINE / RCS ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: ASCENT ENGINE ARM STEP 3: RCS ON

ITEM: 128	**BLOCK 6:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES

ITEM: 129	**BLOCK 6:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: SET GIMBAL ON

ITEM: 130	**BLOCK 6:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ARM JOYSTICK

ITEM: 131	**BLOCK 6:** QUAD PORT ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD PORT ON

ITEM: 132	**BLOCK 6:** QUAD STARB ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD STARB ON

ITEM: 133	**BLOCK 6:** QUAD FWD / REV ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: QUAD FWD / REV ON

ITEM: 134	**BLOCK 6:** OXIDIZER FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: OXID FLOW ON

ITEM: 135	**BLOCK 6:** HYDROGEN FLOW ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: HYDROGEN FLOW ON

ITEM: 136	**BLOCK 6:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: SET THRUST DURATION

ITEM: 137	**BLOCK 6:** SET ENGINE PERCENT
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: SET ENGINE THRUST

ITEM: 138	**BLOCK 6:** MASTER ARM ON
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: MASTER ENGINE ARM ON

ITEM: 139	**BLOCK 6:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL LM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 140	**BLOCK 6:** PNGS ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: PNGS ON

ITEM: 141	**BLOCK 6:** LM RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: RADAR ON

ITEM: 142	**BLOCK 6:** TARGET RATES ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: TARGET RATES ON

ITEM: 143	**BLOCK 6:** LOW BAND RADAR ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: LOW BAND ON

ITEM: 144	**BLOCK 6:** LM AUTO PILOT ON
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: AUTO PILOT ON

ITEM: 145	**BLOCK 6:** LM ALIGN SIGHT ON
	STEP 1: SWITCH TO PANEL LM 2 STEP 2: ALIGN SIGHT ON

ITEM: 146	**BLOCK 6:** ADJUST CABIN PRESSURE
	STEP 1: SWITCH TO PANEL LM 2
	STEP 2: DEPRESS CABIN PRESSURE

ITEM: 147	**BLOCK 6:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3
	STEP 2: DEPRESS PANEL CSM

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ITEM: 148	**BLOCK 7:** SWITCH TO CSM
	STEP 1: SWITCH TO PANEL LM 3 STEP 2: CSM ON

ITEM: 149	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 150	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 151	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 152	**BLOCK 7:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS

ITEM: 153	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

ITEM: 154	**BLOCK 7:** ENABLE MAIN PUMP
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: MAIN PUMP ON

ITEM: 155	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 156	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 157	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 158	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 159	**BLOCK 7:** LM JETT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: LM JETT ON

ITEM: 160	**BLOCK 7:** A TANK & B TANK STIR
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A TANK STIR STEP 3: B TANK STIR

ITEM: 161	**BLOCK 7:** H 2-0 STIR
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: H 2-0 STIR ON

ITEM: 162	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 163	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 164	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 165	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 166	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 167	**BLOCK 7:** ARM SPS ENGINE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS

ITEM: 168	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

ITEM: 169	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 170	**BLOCK 7:** ENTER GIMBAL RATES
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SWITCH ON INPUT STEP 3: ENTER GIMBAL RATES STEP 4: CHECK GIMBAL RATES

ITEM: 172	**BLOCK 7:** SET GIMBAL RATE
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SET GIMBAL ON

ITEM: 173	**BLOCK 7:** SET THRUST DURATION
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET THRUST DURATION

ITEM: 174	**BLOCK 7:** SET ENGINE POWER
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: SET ENGINE THRUST

ITEM: 175	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 176	**BLOCK 7:** ARM SPS ENGINE & CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM MAIN SPS STEP 3: ARM CSM RCS

ITEM: 177	**BLOCK 7:** INITIATE AUTO SEQUENCE
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: AUTO SEQUENCE ON

ITEM: 178	**BLOCK 7:** BUS TIE-LINE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: BUS TIE-LINE ON

ITEM: 179	**BLOCK 7:** BATTERY A, B, C ENABLE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A BATTERY ON STEP 3: B BATTERY ON STEP 4: C BATTERY ON STEP 5: CHECK BATT GAUGES

ITEM: 180	**BLOCK 7:** MAIN A, B, C BUS ENABLE
	STEP 1: SWITCH TO PANEL CSM 3 STEP 2: A BUS ON STEP 3: B BUS ON STEP 4: C BUS ON STEP 5: MAIN BUS ON STEP 6: ALL ELECTRICAL GAUGES

ITEM: 181	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 182	**BLOCK 7:** SPS JETT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: SPS JETT ON

ITEM: 183	**BLOCK 7:** MASTER ARM
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: MASTER ARM ON

ITEM: 184	**BLOCK 7:** ARM CSM RCS
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ARM CSM RCS

ITEM: 185	**BLOCK 7:** ARM JOYSTICK
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: ARM JOYSTICK

ITEM: 186	**BLOCK 7:** ENTRY TRACK
	STEP 1: SWITCH TO PANEL CSM 1 STEP 2: ENTRY TRACK ON

ITEM: 187	**BLOCK 7:** CSM AUTO PILOT
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: AUTO PILOT ON

ITEM: 188	**BLOCK 7:** PYRO ARM
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: OPEN SAFETY COVER STEP 3: PYRO ARM ON

ITEM: 189	**BLOCK 7:** CHUTES DEPLOY
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: CHUTES DEPLOY ON

ITEM: 190	**BLOCK 7:** WATER PACK / BEACON
	STEP 1: SWITCH TO PANEL CSM 2 STEP 2: WATER PACK / BEACON ON

MASTER
CAUTION & WARNING
INDICATORS

SECTION 11-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C101	BLOCK C&W.CSM 2: UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL INDICATORS STEP 3: CHECK BATTERY INDICATORS STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK MAIN BUS CSM 3 STEP 6. CHECK A, B, C BUS CSM 3 STEP 7: CHECK SPS DATA CSM 2 STEP 8: CHECK SYSTEM TEST CSM 2

ITEM:C102	BLOCK C&W.CSM 2: NAV FAULT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK GNCS RATES CSM 2 STEP 3: CHECK GIMBLE RATES CSM 2 STEP 4: CHECK AUTO PILOT CSM 2

ITEM:C103	BLOCK C&W.CSM 2: COMPUTER
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK UP COMPUTER ON CSM 2

ITEM:C104	BLOCK C&W.CSM 2: RADAR FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK RADAR DISPLAY CSM 2 STEP 3: CHECK RADAR SYSTEMS ON CSM 2 STEP 4: CHECK MAIN BUS CSM 3

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C105	BLOCK C&W.CSM 2: SYSTEM FIRE
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK ECS RATES CSM 2 STEP 3: CHECK SPS DATA CSM 2 STEP 4: CHECK COMPUTER STATUS CSM 2 STEP 5: CHECK FUEL CELL INDICATORS CSM 3 STEP 6: CHECK BATTERY INDICATORS CSM 3 STEP 7 CHECK MAIN BREAKER CSM 3 STEP 8: CHECK SPS BREAKER CSM 3

ITEM:C106	BLOCK C&W.CSM 2: LOGIC FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK-UP COMPUTER ON CSM 2

ITEM:C107	BLOCK C&W.CSM 2: ENGINE FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK COMPUTER STATUS CSM 2 STEP 4: CHECK FUEL GAUGE CSM 1 STEP 5: CHECK ENGINE BREAKER CSM 3 STEP 6: CHECK FUEL FLOW CSM 3 STEP 7: CHECK OXIDIZER FLOW CSM 3 STEP 8: CHECK HELIUM FLOW CSM 3 STEP 9: CHECK HELIUM GAUGE CSM 3 STEP 10: CHECK OXIDIZER GAUGE CSM 3 STEP 11: CHECK MAIN PUMP CSM 3

ITEM:C108	BLOCK C&W.CSM 2: FUEL LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL GAUGE CSM 1

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C109	BLOCK C&W.CSM 2: MEMORY FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK PRIME COMPUTER ON CSM 2 STEP 4: CHECK BACK UP COMPUTER ON CSM 2

ITEM:C110	BLOCK C&W.CSM 2: 0-2 SYSTEM
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK 0-2 FLOW CSM 3 STEP 5: CHECK MAIN PUMP ON CSM 3 STEP 6: CHECK 0-2 PUMP ON CSM 3

ITEM:C111	BLOCK C&W.CSM 2: FUEL CELL 1 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 1 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 1 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C112	BLOCK C&W.CSM 2: RADIO FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK PRIME FREQUENCY CSM 3 STEP 5: CHECK SECOND FREQUENCY CSM 3 STEP 6: CHECK ANT. MAST ON CSM 2

APOLLO 18
TRAINING MISSION
CAUTION & WARNING INDICATORS

ITEM:C113	BLOCK C&W.CSM 2: RCS FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK RCS FUEL GAUGE CSM 1 STEP 3: CHECK COMP STATUS CSM 2 STEP 4: CHECK RCS FLOW CSM 3 STEP 5: CHECK MAIN PUMP ON CSM 3 STEP 6: CHECK ARM JOYSTICK ON CSM 2

ITEM:C114	BLOCK C&W.CSM 2: H2-0 SYSTEM
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK ECS RATES CSM 2 STEP 3: CHECK H2-0 PUMP CSM 3 STEP 4: CHECK H2-0 STIR CSM 3

ITEM:C115	BLOCK C&W.CSM 2: FUEL CELL 2 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 2 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 2 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C116	BLOCK C&W.CSM 2: S-BAND FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK PRIME FREQUENCY CSM 3 STEP 5: CHECK SECOND FREQUENCY CSM 3 STEP 6: CHECK ANT. MAST ON CSM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C117	BLOCK C&W.CSM 2: INVERTER FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK INVERTER CSM 3 STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK A, B, C, BUS CSM 3 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3 STEP 8: CHECK CSM BREAKER CSM 3 STEP 9: SPS BREAKER CSM 3 STEP10: CHECK ANT. MAST ON CSM 2

ITEM:C118	BLOCK C&W.CSM 2: MAIN PUMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK MAIN PUMP CSM 3 STEP 3: CHECK SPS DATA CSM 2 STEP 4: CHECK MAIN BREAKER CSM 3 STEP 5: CHECK CSM BREAKER CSM 3

ITEM:C119	BLOCK C&W.CSM 2: FUEL CELL 3 TEMP
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CHECK FUEL CELL 3 GAUGE CSM 3 STEP 5: CHECK INVERTER ON CSM 3 STEP 6: CHECK F CELL 3 ON CSM 3 STEP 7: CHECK MAIN BREAKER ON CSM 3 STEP 8: CHECK A, B, C BUS ON CSM 3 STEP 9: CHECK ECS ON CSM 2

ITEM:C120	BLOCK C&W.CSM 2: TELEMETRY FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK COMPUTER STATUS CSM 2 STEP 3: CHECK RADIO SYSTEMS CSM 2 STEP 4: CHECK ANT. MAST ON CSM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C121	BLOCK C&W.CSM 3: BATTERY A LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY A GAUGE CSM 3 STEP 3: CHECK BATTERY A ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 1 CSM 3

ITEM:C122	BLOCK C&W.CSM 3: BATTERY B LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY B GAUGE CSM 3 STEP 3: CHECK BATTERY B ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 2 CSM 3

ITEM:C123	BLOCK C&W.CSM 3: BATTERY C LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK BATTERY C GAUGE CSM 3 STEP 3: CHECK BATTERY C ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK FUEL CELL 3 CSM 3

ITEM:C124	BLOCK C&W.CSM 3: HELIUM LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK HELIUM GAUGE CSM 3 STEP 3: CHECK HELIUM FLOW ON CSM 3 STEP 4: CHECK SPS DATA DISPLAY CSM 2 STEP 5: CHECK ECS RATES CSM 2

ITEM:C125	BLOCK C&W.CSM 3: OXIDIZER LOW
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK OXIDIZER GAUGE CSM 3 STEP 3: CHECK OXIDIZER FLOW ON CSM 3 STEP 4: CHECK SPS DATA DISPLAY CSM 2 STEP 5: CHECK ECS RATES CSM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C126	BLOCK C&W.CSM 3: FUEL CELL 1 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 1 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 1 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C127	BLOCK C&W.CSM 3: FUEL CELL 2 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 2 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 2 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C128	BLOCK C&W.CSM 3: FUEL CELL 3 FAIL
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK FUEL CELL 3 GAUGE CSM 3 STEP 3: CHECK FUEL CELL 3 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C129	BLOCK C&W.CSM 3: A BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK A BUS ON CSM 3 STEP 3: CHECK FUEL CELL 1 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS

ITEM:C130	BLOCK C&W.CSM 3: B BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK B BUS ON CSM 3 STEP 3: CHECK FUEL CELL 2 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C131	BLOCK C&W.CSM 3: C BUS UNDERVOLT
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK C BUS ON CSM 3 STEP 3: CHECK FUEL CELL 3 ON CSM 3 STEP 4: CHECK INVERTER ON CSM 3 STEP 5: CHECK SPS DATA CSM 2 STEP 6: CHECK AMPS GAUGE CSM 3 STEP 7: CHECK AC GAUGE CSM 3

ITEM:C132	BLOCK C&W.CSM 3: TEMPATURE HIGH
	STEP 1: CLEAR MASTER ALARM CSM 2 STEP 2: CHECK SPS DATA DISPLAY CSM 2 STEP 3: CHECK ECS RATES CSM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C132	BLOCK C&W.LM1: UNDERVOLT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK A BUS ON LM 3 STEP 3: CHECK B BUS ON LM 3 STEP 4: CHECK BATTERY A, B, ON LM 3 STEP 5: CHECK INVERTER ON LM 3 STEP 6: CHECK COMPUTER STATUS LM 3 STEP 7: CHECK AMPS GAUGE LM 3 STEP 8: CHECK VOLTS GAUGE LM 3 STEP 9: CHECK DC GAUGE LM 3

ITEM:C133	BLOCK C&W.LM 1: NAV FAULT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK ASCENT OR DESCENT RATES LM 3 STEP 3: CHECK GIMBLE RATES LM 3 STEP 4: CHECK G/N LM 2

ITEM:C134	BLOCK C&W.LM 1: COMPUTER
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CHECK PRIME COMPUTER ON LM 2 STEP 4: CHECK BACK UP COMPUTER ON LM2 STEP 5: CHECK AUTO PILOT LM 3

ITEM:C135	BLOCK C&W.LM 1: 801 ALARM
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CHECK IMU ON LM 2 STEP 4: CHECK G/N ON LM2 STEP 5: CHECK RADAR ON LM 2 STEP 6: SELECT HIGH OR LOW BAND RADAR LM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C136	BLOCK C&W.LM 2: BATTERY A LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY A GAUGE LM 3 STEP 3: CHECK BATTERY A ON LM 3 STEP 4: CHECK A BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C137	BLOCK C&W.LM 2: BATTERY B LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY B GAUGE LM 3 STEP 3: CHECK BATTERY B ON LM 3 STEP 4: CHECK B BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C138	BLOCK C&W.LM 2: BATTERY C LOW
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK BATTERY C GAUGE LM 3 STEP 3: CHECK BATTERY C ON LM 3 STEP 4: CHECK C BUS ON LM 3 STEP 5: CHECK MAIN BREAKER LM 3

ITEM:C139	BLOCK C&W.LM 2: FUEL PUMP
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK FUEL PUMP CSM 2 STEP 3: CHECK FUEL SYSTEM LM 3 STEP 4: CHECK FUEL GAUGES LM 1 STEP 5: CHECK ALL FUEL TANKS LM 3

ITEM:C140	BLOCK C&W.LM 2: RCS FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK FUEL PUMP CSM 2 STEP 3: CHECK RCS FUEL TANK LM 2

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C141	BLOCK C&W.LM 2: MAIN BUS FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK MAIN BUS LM 3 STEP 3: CHECK MAIN BREAKER ON LM 3 STEP 4: CHECK A, B, C BUS LM 3 STEP 5: CHECK LM SYSTEM ON LM 3

ITEM:C142	BLOCK C&W.LM 2: TELEMETRY FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK RADIO SYSTEM ON LM 2 STEP 3: CHECK S-BAND SYSTEM ON LM 3

ITEM:C143	BLOCK C&W.LM 2: SYSTEM FIRE
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMP STATUS LM 3 STEP 3: CHECK CAUTION & WARNING LM 1 & LM 2

ITEM:C144	BLOCK C&W.LM 2: AUTO PILOT
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK COMP STATUS LM 3 STEP 3: CHECK G/N LM 2 STEP 4: CHECK PGNS ON LM 3 STEP 5: CHECK AGS ON LM 3 STEP 6: CHECK AUTO PILOT LM 3

ITEM:C145	BLOCK C&W.LM 2: CABIN PRESS
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK CABIN PRESS ON LM 2 STEP 3: CHECK O-2 GAUGE LM 2 STEP 4: CHECK COMP STATUS LM 3

APOLLO 18
TAURUS LITTROW
CAUTION & WARNING INDICATORS
LUNAR MODULE SYSTEMS

ITEM:C146	BLOCK C&W.LM 2: RADIO FAIL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK RADIO SYSTEM ON LM 3 STEP 3: CHECK S-BAND LM 3 STEP 4: CHECK COMP STATUS LM 3

ITEM:C147	BLOCK C&W.LM 2: 0-2 SYSTEM
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: CHECK CABIN PRESS ON LM 2 STEP 3: CHECK 0-2 GAUGE LM 2 STEP 4: CHECK 0-2 FLOW ON LM 3

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APOLLO 18
CM & LM
SOLUTIONS

SECTION 12-1

JSC LUNAR GENERIC, REV G 7/72

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P501	BLOCK: SATURN S-1C ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-1C FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P502	BLOCK: SATURN S-II ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-II FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P503	BLOCK: SATURN S-4B ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: CHECK GIMBAL RATES CSM 2 STEP 4: CHECK ASCENT RATE CSM 1 STEP 5: CONSULT MCC STEP 6: JETTISON S-4B FAILED STAGE STEP 7: IF FAILURE CONTINUES, **LES JETT** CSM 1

ITEM:P504	BLOCK: SYSTEM FIRE
	STEP 1: CHECK MASTER ALARM & C&W CSM 2, 3 STEP 2: CHECK SPS DATA CSM 2 STEP 3: CHECK ECS RATES CSM 2 STEP 4: CONSULT MCC STEP 5: MAIN BREAKER OFF CSM 3 STEP 6: MAIN BUS OFF CSM 3

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P505	BLOCK: ASCENT TRACK FAULT
	STEP 1: CHECK MASTER ALARM & C&W CSM 2 STEP 2: CHECK ASCENT TRACK DATA CSM 1 STEP 3: CHECK SLOPE INDICATOR CSM 1 STEP 4: CHECK GIMBAL RATES CSM 2 STEP 5: CHECK 8 BALL CSM 1 STEP 6: ARM JOYSTICK CSM 2 STEP 7: MANUAL FIRE CSM 1 STEP 8: MONITOR SLOPE TRACK CSM 3

ITEM:P506	BLOCK: S-1C JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-1C JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P507	BLOCK: S-2 JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-2 JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P508	BLOCK: S-4B JETTISON
	STEP 1: CHECK THRUST DURATION CSM 1 STEP 2: CHECK SATURN ENGINE STATUS CSM 1 STEP 3: WHEN ENGINE CUTOFF / S-4B JETT CSM 1 STEP 4: CONSULT MCC

ITEM:P509	BLOCK: LES JETTISON
	STEP 1: CHECK COMPUTER STATUS CSM 2 STEP 2: CONFIRM WITH MCC STEP 3: LAUNCH ESCAPE ON CSM 1

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P510	BLOCK: FUEL CELL 1 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS ON CSM 3 STEP 5: FUEL CELL 1 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 1 GAUGE CSM 3

ITEM:P511	BLOCK: TWO FUEL CELL SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: B BUS OFF CSM 3 STEP 4: A BUS ON CSM 3 STEP 5: FUEL CELL 2 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 2 GAUGE CSM 3

ITEM:P512	BLOCK: FUEL CELL 3 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: C BUS OFF CSM 3 STEP 4: A BUS ON CSM 3 STEP 5: FUEL CELL 3 OFF CSM 3 STEP 6: CHECK ECS RATES CSM 2 STEP 7: CHECK AMPS GAUGE CSM 3 STEP 8: CHECK AC GAUGE CSM 3 STEP 9: CHECK CELL 3 GAUGE CSM 3

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P513	BLOCK: FUEL CELL 1 & 2 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: FUEL CELL 1 OFF CSM 3 STEP 7: FUEL CELL 2 OFF CSM 3 STEP 8: CHECK ECS RATES CSM 2 STEP 9: CHECK CELL 1& 2 GAUGE CSM 3 STEP 10: CHECK DC GAUGE STEP 11: CHECK CELL 1& 2 GAUGE CSM 3

ITEM:P514	BLOCK: FUEL CELL 1, 2 & 3 SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS OFF CSM 3 STEP 6: FUEL CELL 1 OFF CSM 3 STEP 7: FUEL CELL 2 OFF CSM 3 STEP 8: FUEL CELL 3 OFF CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK CELL 1, 2, & 3 GAUGES CSM 3 STEP 11: CHECK BATT 1, 2, & 3 GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

ITEM:P515	BLOCK: IMU FAIL
	STEP 1: CHECK GNCS DATA CSM 2 STEP 2: IMU OFF CSM 2 STEP 3: EXTERNAL CAMERA ON CSM 2 STEP 4: STAR FINDER ON CSM 2 STEP 5: RCS OR MAIN SPS ON STEP 6: ARM JOYSTICK ON STEP 7: USE RCS/SPS THRUST TO ALIGN COURSE

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P516	BLOCK: S-4B ENGINE FAIL
	STEP 1: CHECK GNCS DATA CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK S-4B FUEL GAUGE CSM 2 STEP 4: ARM S1C, S2, S4B CSM 1 STEP 5: MANUAL FIRE ON CSM 1 STEP 6: IF ENGINE FAILS (ABORT MISSION) STEP 7: S4B JETT ON STEP 8: SEE MISSION ABORT BLOCK TLI

ITEM:P517	BLOCK: COMPUTER FAIL
	STEP 1: CHECK COMPUTER STATUS CSM 2 STEP 2: PRIME COMPUTER RESET OFF/ON CSM 2 STEP 3: (IF RESET FAILS) PRIME COMP OFF CSM 2 STEP 4: BACK-UP COMPUTER OFF/ON CSM 2 STEP 5: (IF RESET FAILS) BK-UP COMP OFF STEP 6: CONSULT MCC

ITEM:P518	BLOCK: RCS FAIL
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK RCS FUEL GAUGE CSM 1 STEP 4: RESET RCS FUEL FLOW CSM 3 STEP 5: RESET ARM JOYSTICK CSM 2 STEP 6: CONSULT MCC

ITEM:P519	BLOCK: SPS ENGINE FAIL
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK COMP STATUS CSM 2 STEP 3: CHECK SPS FUEL GAUGE CSM 1 STEP 4: RESET FUEL FLOW CSM 3 STEP 5: RESET ENGINE BREAKER CSM 3 STEP 6: RESET MAIN SPS ENGINE CSM 1 STEP 7: CONSULT MCC

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P520	BLOCK: 8 BALL FAILURE
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: CHECK GNCS RATES CSM 2 STEP 3: RESET IMU SYSTEM CSM 2 STEP 4: CONSULT MCC

ITEM:P521	BLOCK: BATTERY A SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS ON CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: BATTERY A OFF CSM 3 STEP 7: BATTERY B ON CSM 3 STEP 8: BATTERY C ON CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT 1 GAUGE CSM 3 STEP 11: CHECK BATT 2 & 3 GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

ITEM:P523	BLOCK: BATTERY B SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS ON CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS ON CSM 3 STEP 6: BATTERY A ON CSM 3 STEP 7: BATTERY B OFF CSM 3 STEP 8: BATTERY C ON CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT B GAUGE CSM 3 STEP 11: CHECK BATT A & C GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P524	BLOCK: BATTERY C SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS ON CSM 3 STEP 4: B BUS ON CSM 3 STEP 5: C BUS OFF CSM 3 STEP 6: BATTERY A ON CSM 3 STEP 7: BATTERY B ON CSM 3 STEP 8: BATTERY C OFF CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT C GAUGE CSM 3 STEP 11: CHECK BATT A & B GAUGES CSM 3 STEP 12: CHECK DC GAUGE CSM 3

ITEM:P525	BLOCK: BATTERY A, B & C SHUT DOWN
	STEP 1: CHECK SPS DATA CSM 2 (SEE NOTES) STEP 2: BUS TIE-LINE ON CSM 3 STEP 3: A BUS OFF CSM 3 STEP 4: B BUS OFF CSM 3 STEP 5: C BUS OFF CSM 3 STEP 6: BATTERY A OFF CSM 3 STEP 7: BATTERY B OFF CSM 3 STEP 8: BATTERY C OFF CSM 3 STEP 9: CHECK ECS RATES CSM 2 STEP 10: CHECK BATT A, B & C GAUGES STEP 11: START BACK-UP BATT (see item p526) STEP 12: CHECK DC GAUGE CSM 3

ITEM:P526	BLOCK: BACK-UP BATTERY
	STEP 1: CHECK SPS STATUS CSM 2 STEP 2: MAIN BUS TIE-LINE ON CSM 3 STEP 3: A, B, C BUS ON CSM 3 STEP 4: BK-UP BATT ON CSM 2 STEP 5: CHECK DC GAUGE CSM 3 STEP 6: CONSULT MCC

APOLLO 18
TAURUS LITTROW
COMMAND MODULE SOLUTIONS

ITEM:P527	BLOCK: CSM SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON CSM 2 STEP 2: CSM SYSTEM (RESTART) CSM 2 STEP 3: DATA DISPLAY ON CSM 2 STEP 4: RADIO SYSTEM (RESET) CSM 2 STEP 5: BATTERY (RESTART) (see BLOCK 1) STEP 6: CSM BREAKER (RESET) CSM 3 STEP 7: ECS SYSTEM (RESTART) CSM 2 STEP 8: CONSULT MCC

ITEM:P528	BLOCK: COMPUTER DISPLAY FAILURE
	STEP 1: CHECK COMP STATUS CSM 2 STEP 2: PRIME COMPUTER (RESTART) CSM 2 STEP 3: BACK-UP COMPUTER (RESTART) CSM 2 STEP 4: CSM SYSTEM (RESET) CSM 3 STEP 5: CONSULT MCC

ITEM:P528	BLOCK: ENGINE HEATER FAIL
	STEP 1: CHECK SPS DATA CSM 2 STEP 2: ENGINE HEATER (RESTART) CSM 2 STEP 3: ROLL CSM PROGRAM (4 RVS PER MIN.) STEP 4: STIR H-20 TANKS STEP 5: STIR A & B TANKS CSM 3 STEP 6: CONSULT MCC

ITEM:P529	BLOCK: SPS SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON CSM 2 STEP 2: CSM SYSTEM (RESTART) CSM 2 STEP 3: DATA DISPLAY ON CSM 2 STEP 4: RADIO SYSTEM (RESET) CSM 2 STEP 5: BATTERY (RESTART) (see BLOCK 1) STEP 6: SPS BREAKER (RESET) CSM 3 STEP 7: ECS SYSTEM (RESTART) CSM 2 STEP 8: CONSULT MCC

APOLLO 18
TAURUS LITTROW
LUNAR MODULE SOLUTIONS

ITEM:P601	BLOCK: LM DESCENT ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK LM DESCENT ENGINE STATUS LM 1 STEP 3: CHECK GIMBAL RATES LM 3 STEP 4: (RESET) ENGINE BREAKER LM 3 STEP 5: CHECK DESCENT FUEL GUAGE LM 1 STEP 6: RESTART FUEL PUMP LM 3 STEP 7: (RESET) FUEL SYSTEM LM 3 STEP 8: CONSULT MCC STEP 9: IF FAILURE CONTINUES, ABORT LANDING

ITEM:P602	BLOCK: LM ASCENT ENGINE FAILURE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK LM ASCENT ENGINE STATUS LM 1 STEP 3: CHECK GIMBAL RATES LM 3 STEP 4: (RESET) ENGINE BREAKER LM 3 STEP 5: CHECK ASCENT FUEL GUAGE LM 1 STEP 6: RESTART FUEL PUMP LM 3 STEP 7: (RESET) FUEL SYSTEM LM 3 STEP 8: CONSULT MCC

ITEM:P603	BLOCK: ENGINE HEATER FAIL
	STEP 1: CHECK COMP STATUS LM 3 STEP 2: ENGINE HEATER (RESTART) LM 3 STEP 3: (RESET) LM SYSTEM LM 3 STEP 4: TANK STIR LM 3 STEP 5: CONSULT MCC

ITEM:P604	BLOCK: LM SYSTEM FAILURE
	STEP 1: BACK-UP BATTERY ON LM 3 STEP 2: LM SYSTEM (RESTART) LM 3 STEP 3: RADIO SYSTEM (RESET) LM 3 STEP 4: BATTERY (RESTART) (see BLOCK 3) STEP 5: MAIN BREAKER (RESET) LM 3 STEP 6: CONSULT MCC

APOLLO 18
TAURUS LITTROW
LUNAR MODULE SOLUTIONS

ITEM:P605	BLOCK: 8 BALL FAILURE
	STEP 1: CHECK COMP STATUS LM 3 STEP 2: CHECK ASCENT/DESCENT RATES LM 3 STEP 3: (RESET) IMU SYSTEM LM 2 STEP 4: CONSULT MCC

ITEM:P606	BLOCK: BATTERY A SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: MAIN BUS TIE-LINE ON LM 3 STEP 3: A BUS OFF LM 3 STEP 4: B BUS ON LM 3 STEP 5: C BUS ON LM 3 STEP 6: BATTERY A OFF LM 3 STEP 7: BATTERY B ON LM 3 STEP 8: BATTERY C ON LM 3 STEP 9: CHECK VOLTS GAUGE LM 3 STEP 10: CHECK BATT A GAUGE LM 3 STEP 11: CHECK BATT B & C GAUGES LM 3 STEP 12: CHECK DC GAUGE LM 3

ITEM:P607	BLOCK: BATTERY B SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: MAIN BUS TIE-LINE ON LM 3 STEP 3: A BUS OFF LM 3 STEP 4: B BUS ON LM 3 STEP 5: C BUS ON LM 3 STEP 6: BATTERY A ON LM 3 STEP 7: BATTERY B OFF LM 3 STEP 8: BATTERY C ON LM 3 STEP 9: CHECK VOLTS GAUGE LM 3 STEP 10: CHECK BATT B GAUGE LM 3 STEP 11: CHECK BATT A & C GAUGES LM 3 STEP 12: CHECK DC GAUGE LM 3

APOLLO 18
TAURUS LITTROW
LUNAR MODULE SOLUTIONS

ITEM:P608	BLOCK: BATTERY C SHUT DOWN
	STEP 1: CHECK COMPUTER STATUS LM 3
	STEP 2: MAIN BUS TIE-LINE ON LM 3
	STEP 3: A BUS ON LM 3
	STEP 4: B BUS ON LM 3
	STEP 5: C BUS OFF LM 3
	STEP 6: BATTERY A ON LM 3
	STEP 7: BATTERY B ON LM 3
	STEP 8: BATTERY C OFF LM 3
	STEP 9: CHECK VOLTS GAUGE LM 3
	STEP 10: CHECK BATT C GAUGE LM 3
	STEP 11: CHECK BATT A & B GAUGES LM 3
	STEP 12: CHECK DC GAUGE LM 3

ITEM:P609	BLOCK: BATTERY A, B & C SHUT DOWN
	STEP 1: CHECK COMP STATUS LM 3
	STEP 2: MAIN BUS TIE-LINE ON CSM 3
	STEP 3: A BUS OFF LM 3
	STEP 4: B BUS OFF LM 3
	STEP 5: C BUS OFF LM 3
	STEP 6: BATTERY A OFF LM 3
	STEP 7: BATTERY B OFF LM 3
	STEP 8: BATTERY C OFF LM 3
	STEP 9: CHECK VOLTS GAUGE LM 3
	STEP 10: CHECK BATT A, B & C GAUGES
	STEP 11: START BACK-UP BATT (see item p.610)
	STEP 12: CHECK DC GAUGE LM 3

ITEM:P610	BLOCK: BACK-UP BATTERY
	STEP 1: CHECK COMP STATUS CSM 2
	STEP 2: BK-BATT ON LM 3
	STEP 3: MN BUS TIE-LINE ON LM 3
	STEP 4: A, B, C BUS ON LM 3
	STEP 5: CHECK DC GAUGE LM 3
	STEP 6: CONSULT MCC

APOLLO 18
TAURUS LITTROW
LUNAR MODULE SOLUTIONS

ITEM:P611	BLOCK: COMPUTER FAIL
	STEP 1: CHECK COMPUTER STATUS LM 2 STEP 2: PRIME COMPUTER RESET OFF/ON LM 2 STEP 3: (IF RESET FAILS) PRIME COMP OFF LM 2 STEP 4: BACK-UP COMPUTER OFF/ON LM 2 STEP 5: (IF RESET FAILS) BK-UP COMP OFF STEP 6: CONSULT MCC

ITEM:P612	BLOCK: RCS FAIL
	STEP 1: CHECK COMPUTER STATUS LM 3 STEP 2: CHECK RCS FUEL GAUGE LM 1 STEP 3: RESET RCS TANK LM 2 STEP 4: RESET ARM JOYSTICK LM 2 STEP 5: CONSULT MCC

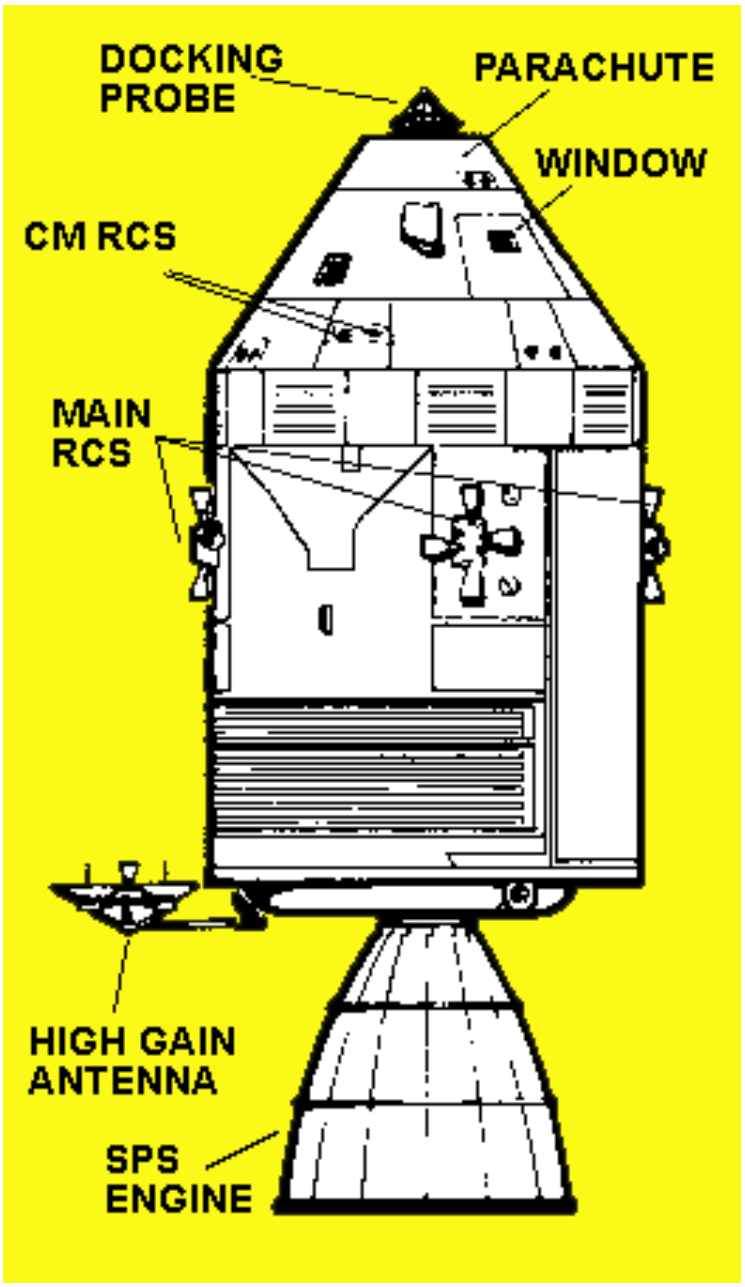
ITEM:P613	BLOCK: SYSTEM FIRE
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: CHECK COMPUTER STATUS LM 3 STEP 3: CONSULT MCC STEP 4: MAIN BREAKER OFF LM 3 STEP 5: MAIN BUS OFF LM 3

ITEM:P614	BLOCK: NO LANDING GEAR LOCK
	STEP 1: CHECK MASTER ALARM & C&W LM 1, 2 STEP 2: (RESET) GEAR LOCK LM 2 STEP 3: CONSULT MCC STEP 4: (RECYCLE) MAIN BUS LM 3 STEP 5: CONSULT MCC

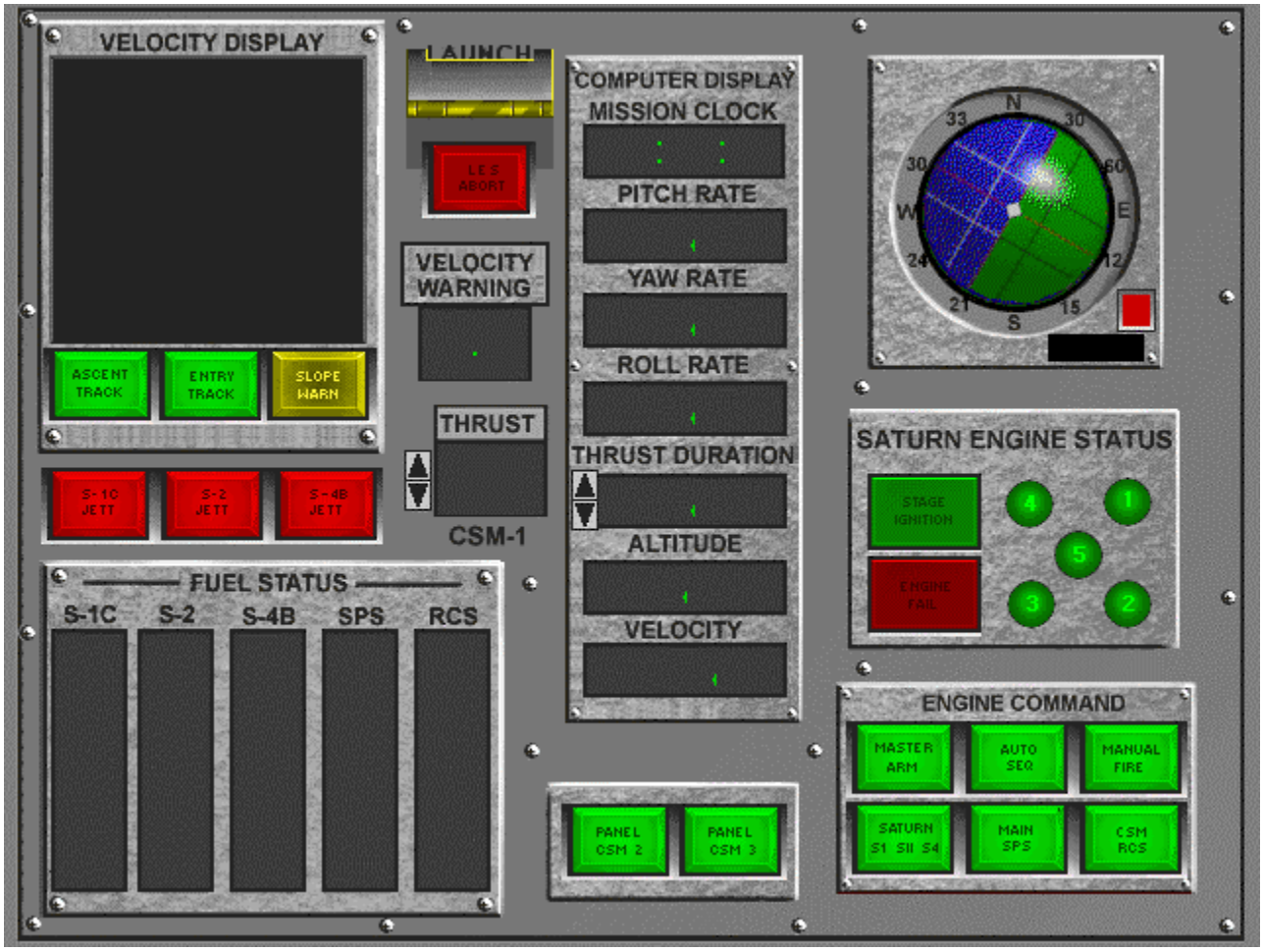
ITEM:P615	BLOCK: LOW RCS (ASCENT) FUEL
	STEP 1: CLEAR MASTER ALARM LM 2 STEP 2: RCS TANK OPEN LM 2 STEP 3: RCS TIE-LINE ON LM 2 STEP 4: (RESTART) MAIN FUEL PUMP LM 2

SPACECRAFT SYSTEMS
&
PANEL DRAWINGS

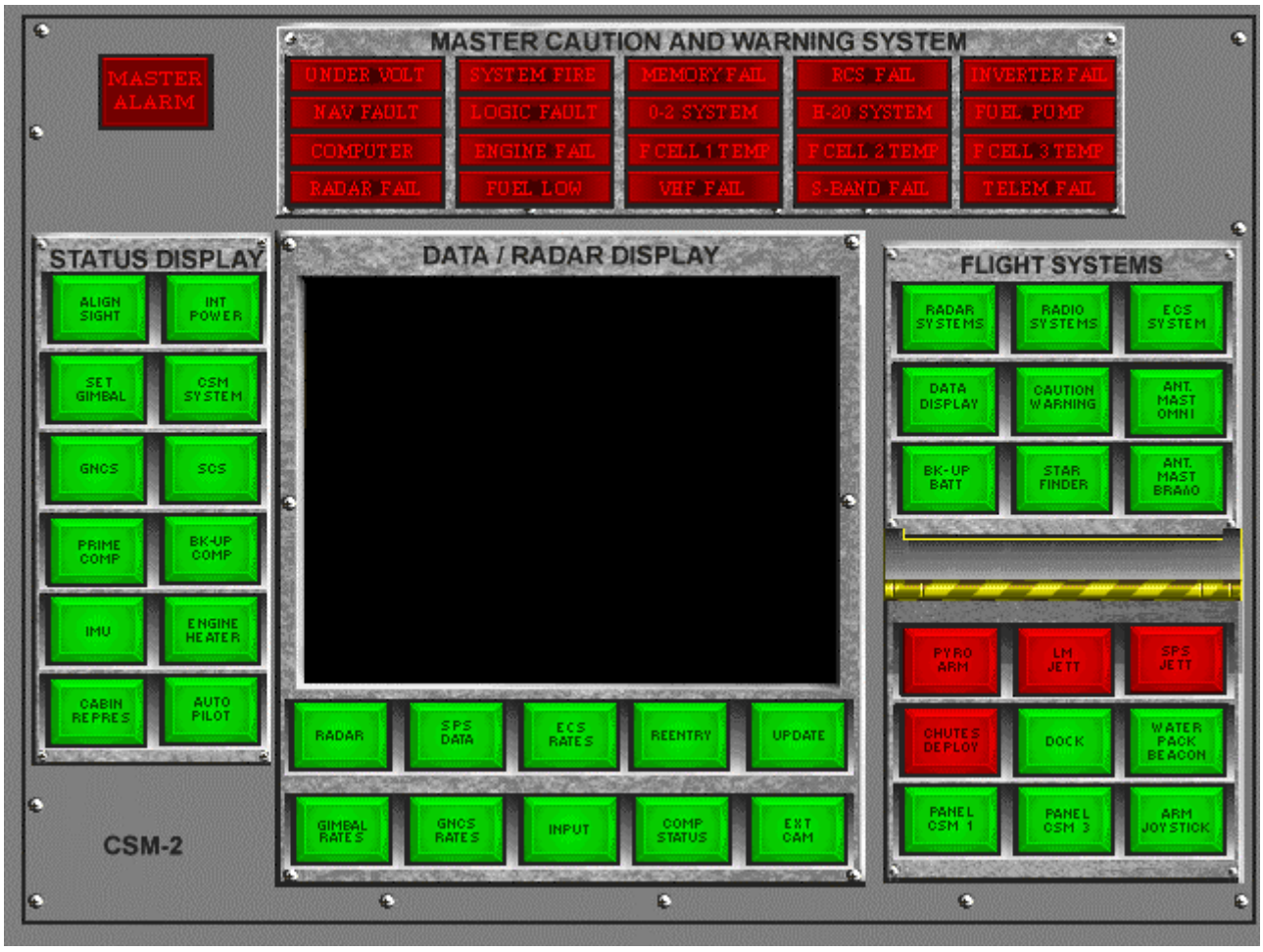
JSC LUNAR GENERIC, REV G 7/72



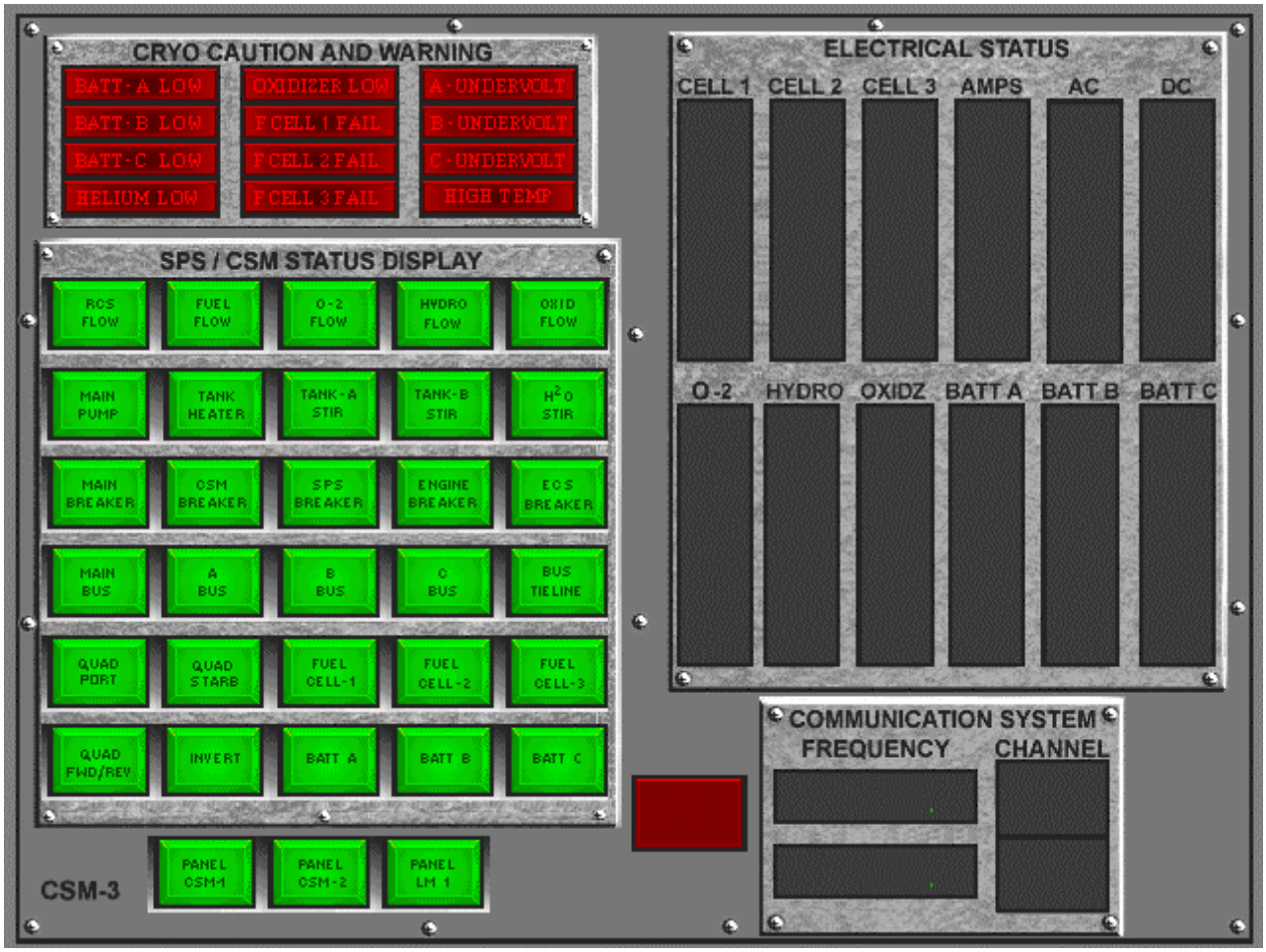
COMMAND MODULE
SERVICE PROPULSION SYSTEM



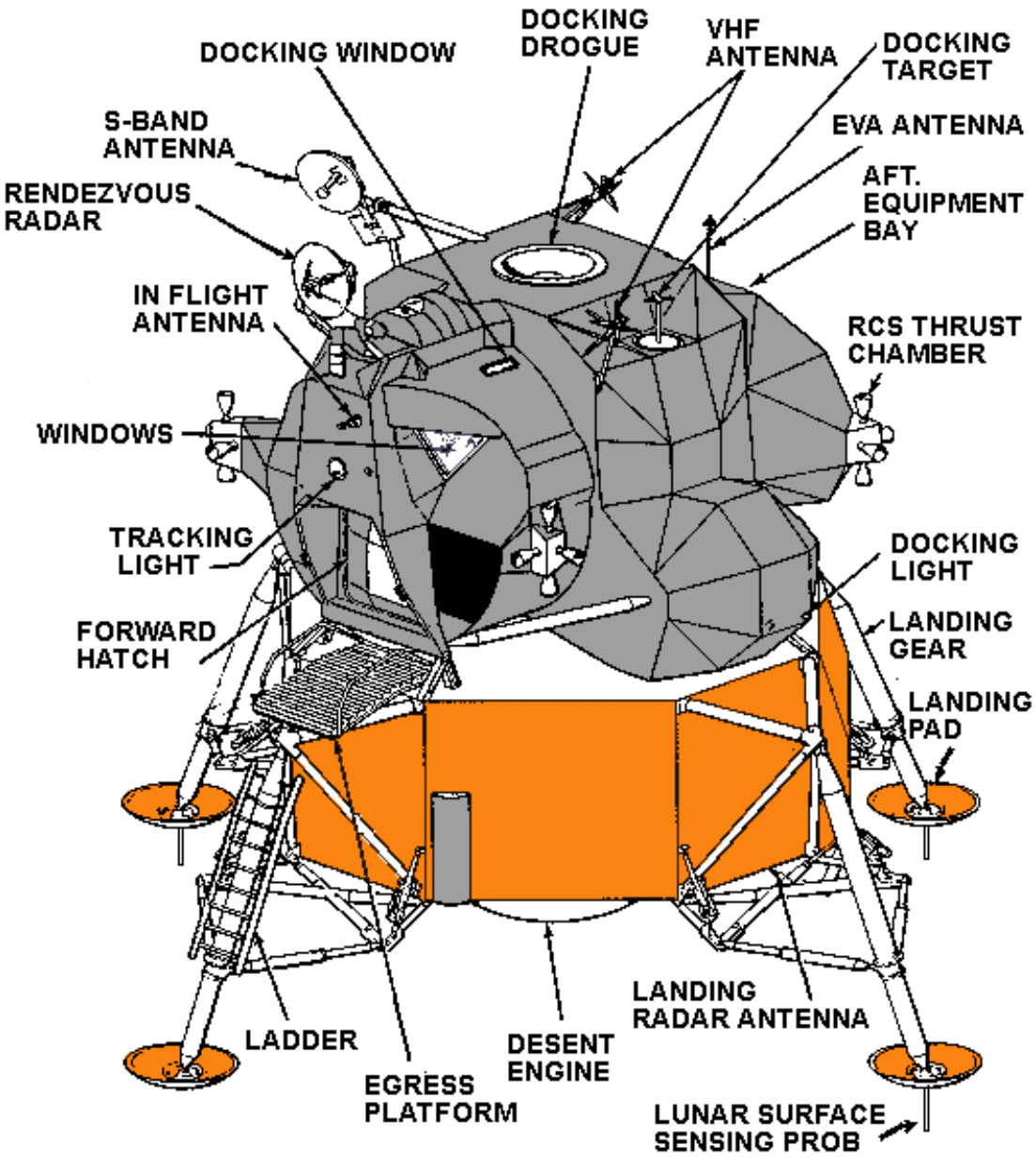
COMMAND MODULE PANEL
CSM-1 REV-K 8/71



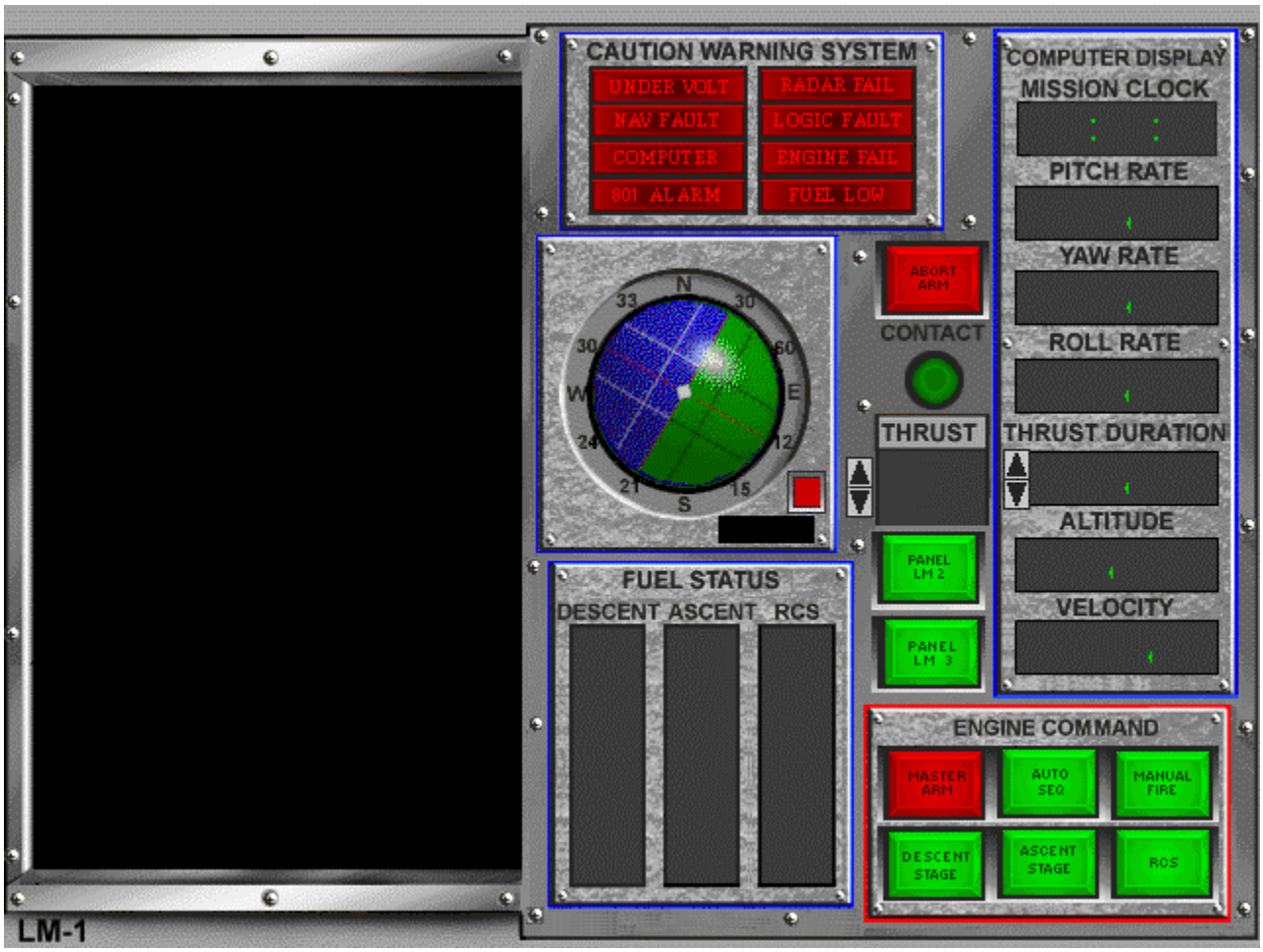
COMMAND MODULE PANEL
CSM-2 REV-K 8/71



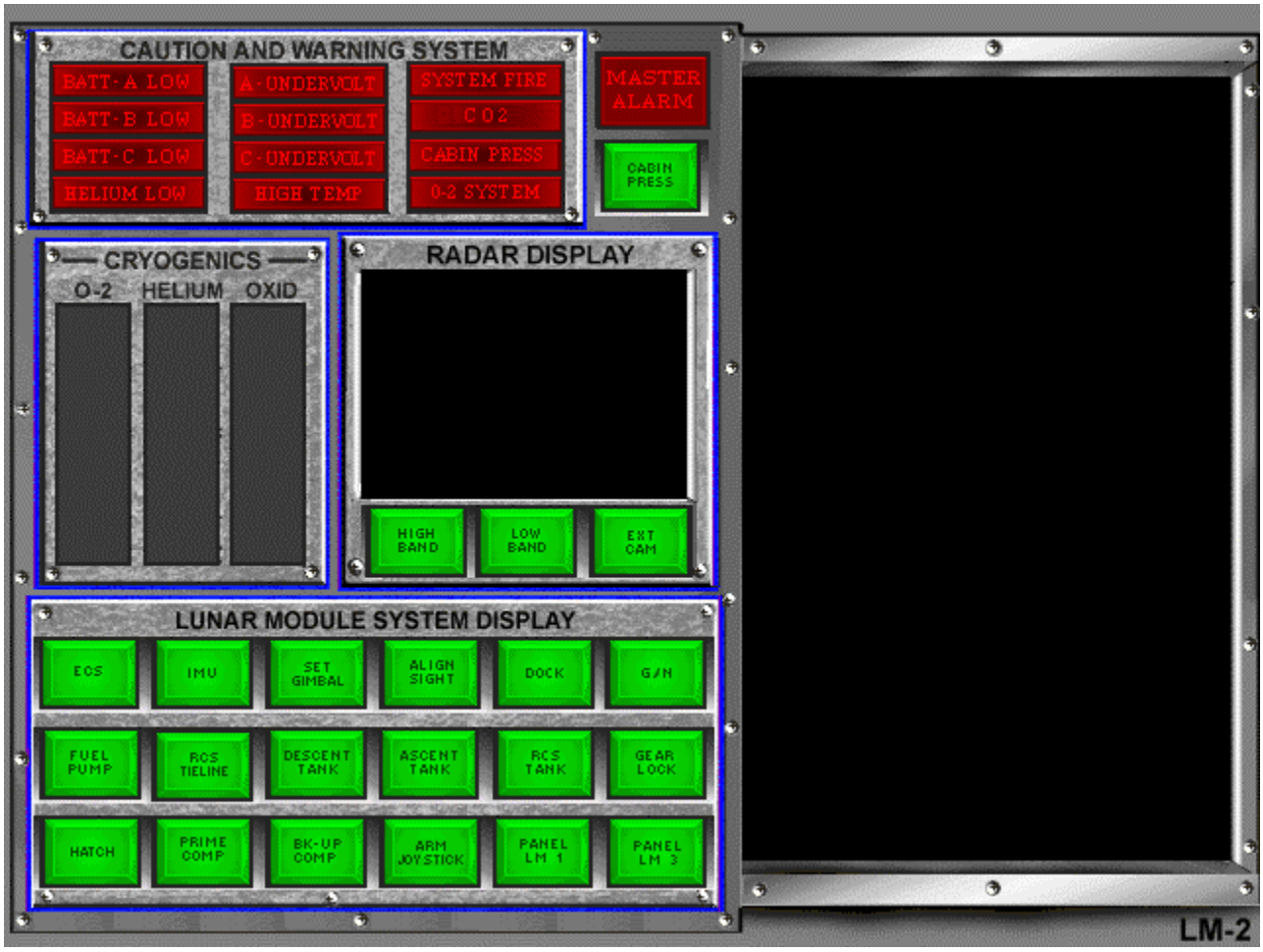
COMMAND MODULE PANEL
CSM-3 REV-K 8/



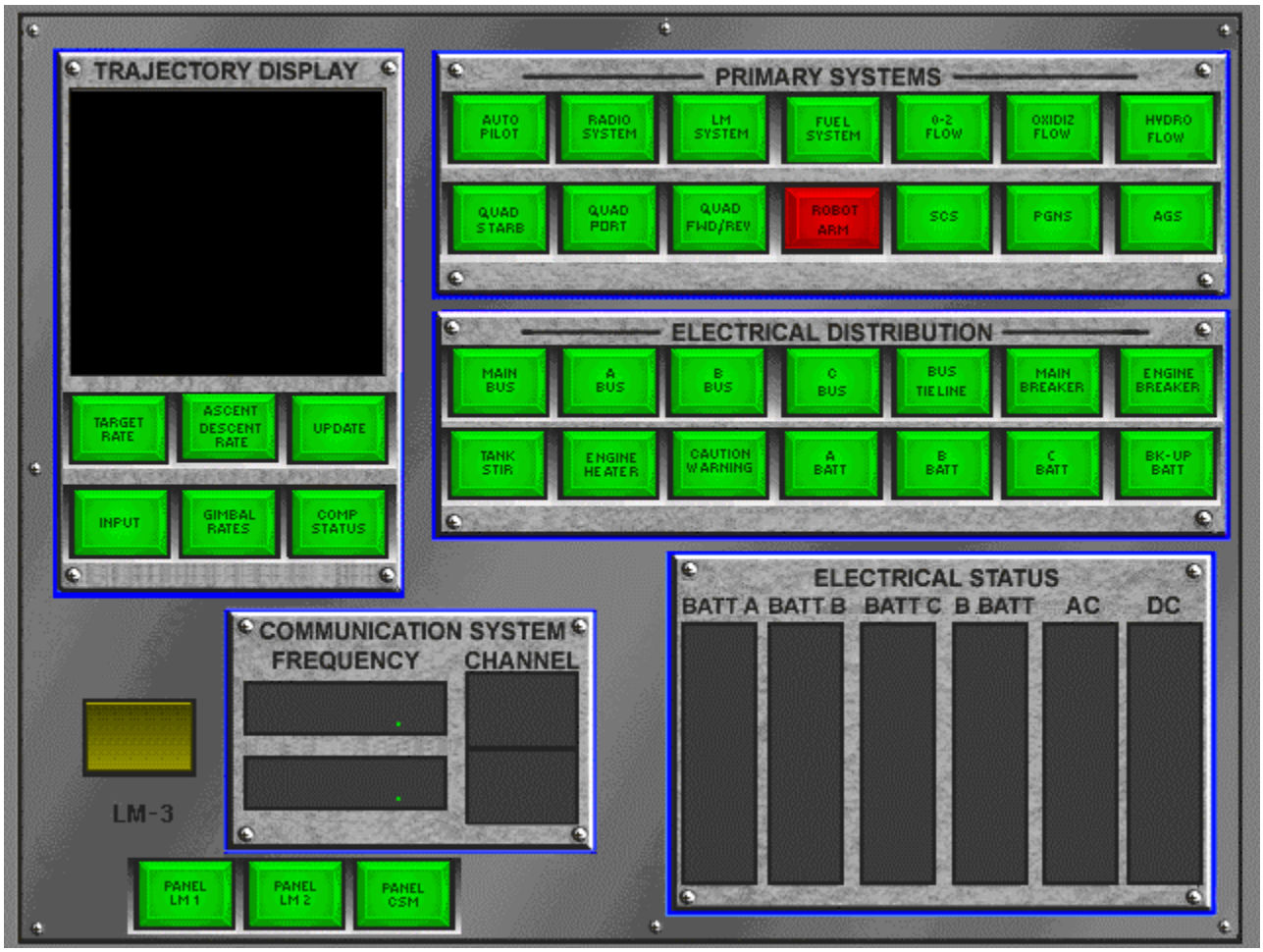
External overview



LUNAR MODULE PANEL
LM-1 REV-K 8/71

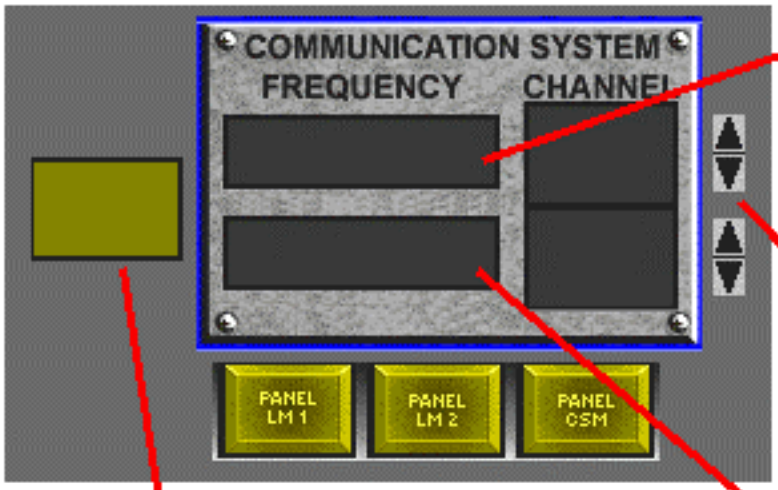


LUNAR MODULE PANEL
LM-2 REV-K 8/71



LUNAR MODULE PANEL
LM-3 REV-K 8/71

APOLLO SPACECRAFT RADIO SYSTEM CONTROLS



PRIMARY FREQUENCY

TUNING CONTROLS

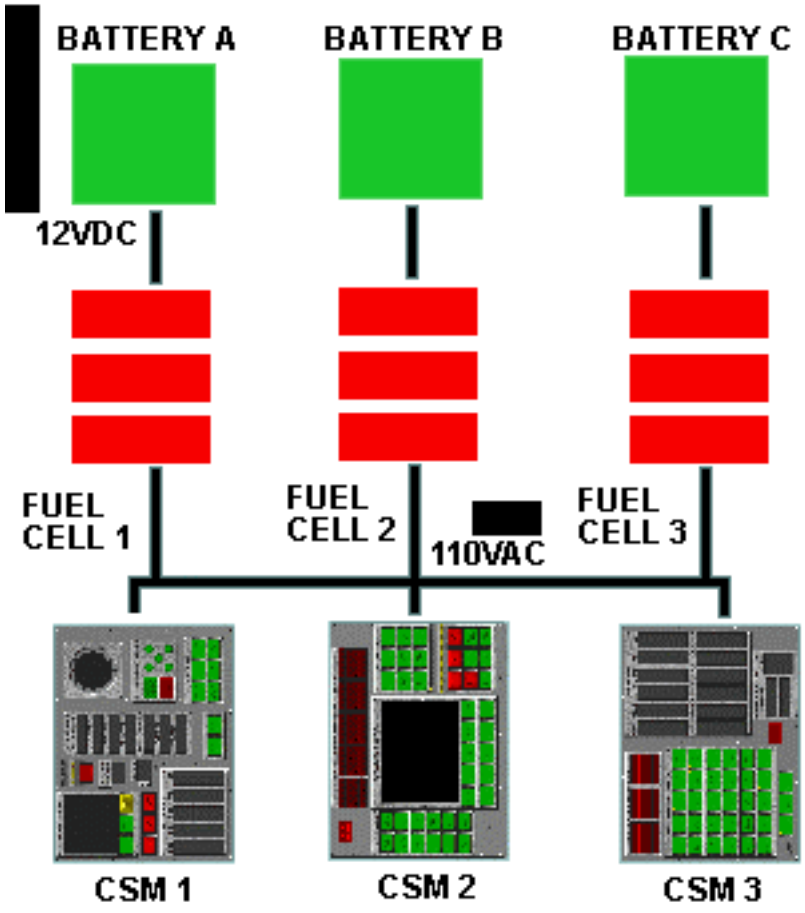
RADIO C. REV 3.4 1970

AOS / LOS INDICATOR

SECONDARY FREQUENCY

NOTE: SOLAR DISTURBANCE CAN CAUSE LOSS OF SIGNAL.

COMMAND MODULE ELECTRICAL SYSTEM ELECTRICAL FLOW



NOTE: FUEL CELLS CAN NOT BE RESTARTED AFTER PREMATURE SHUTDOWN.

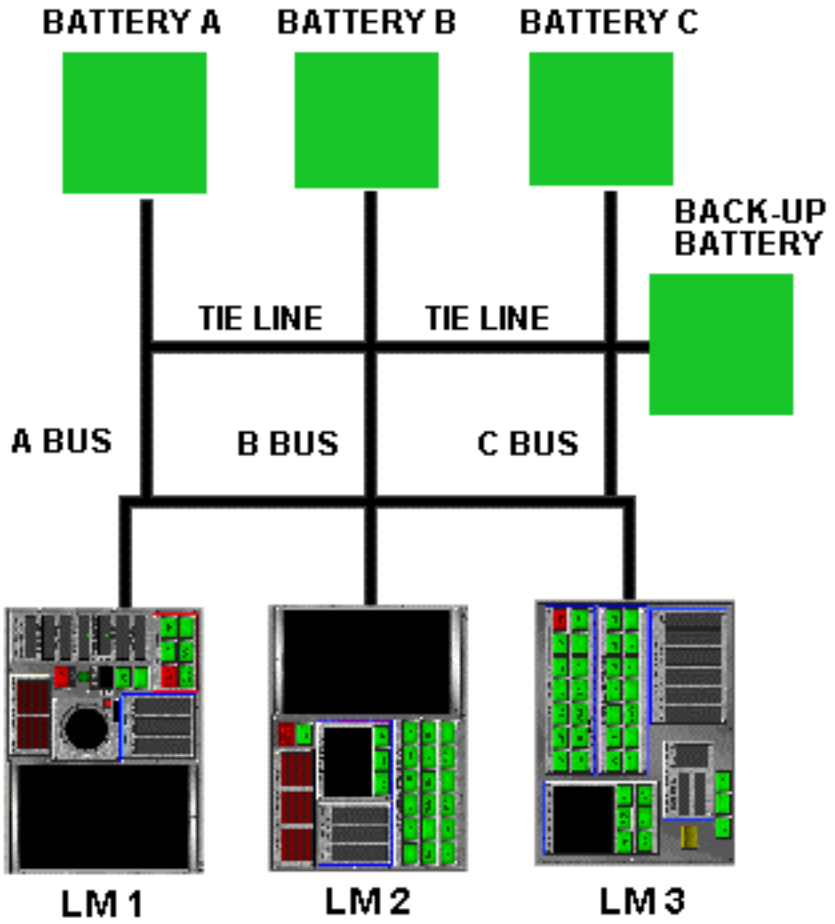
BATTERIES MUST BE RECHARGED DURING MISSION.

BATTERY DRAIN TIME MAX: 15 MINUTES

REV 2.7 71

LUNAR MODULE
ELECTRICAL SYSTEM

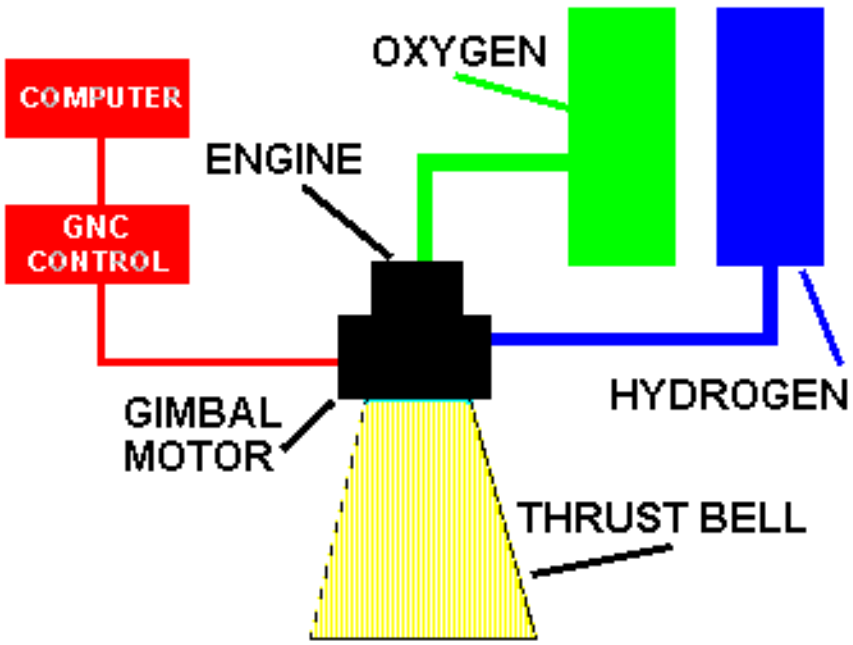
ELECTRICAL FLOW



NOTE: LUNAR MODULE ELECTRICAL SYSTEM CAN NOT REGENERATE ELECTRICAL POWER.

LUNAR MODULE TOTAL BATTERY LIFE 18 MINUTES TOTAL.

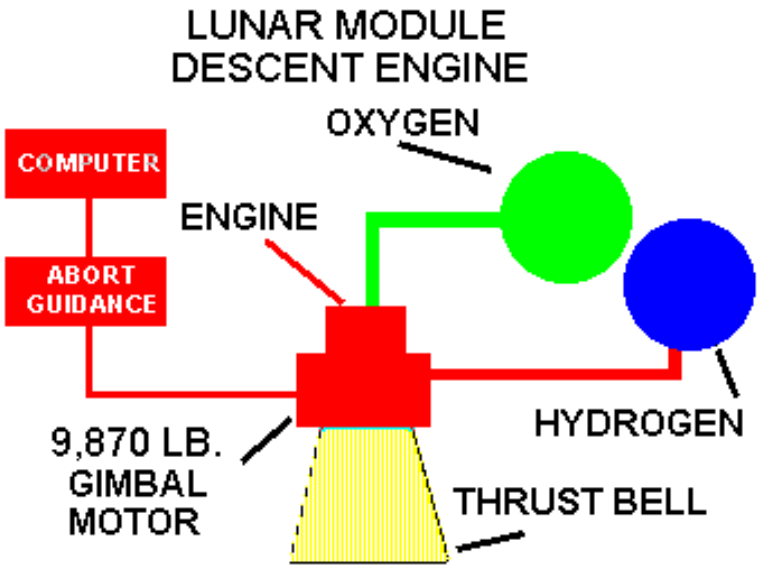
APOLLO
SERVICE PROPULSION
ENGINE SYSTEM

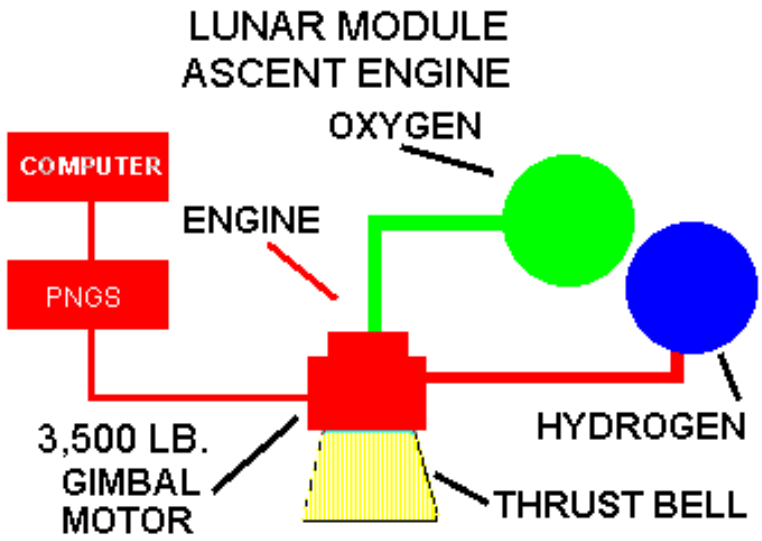


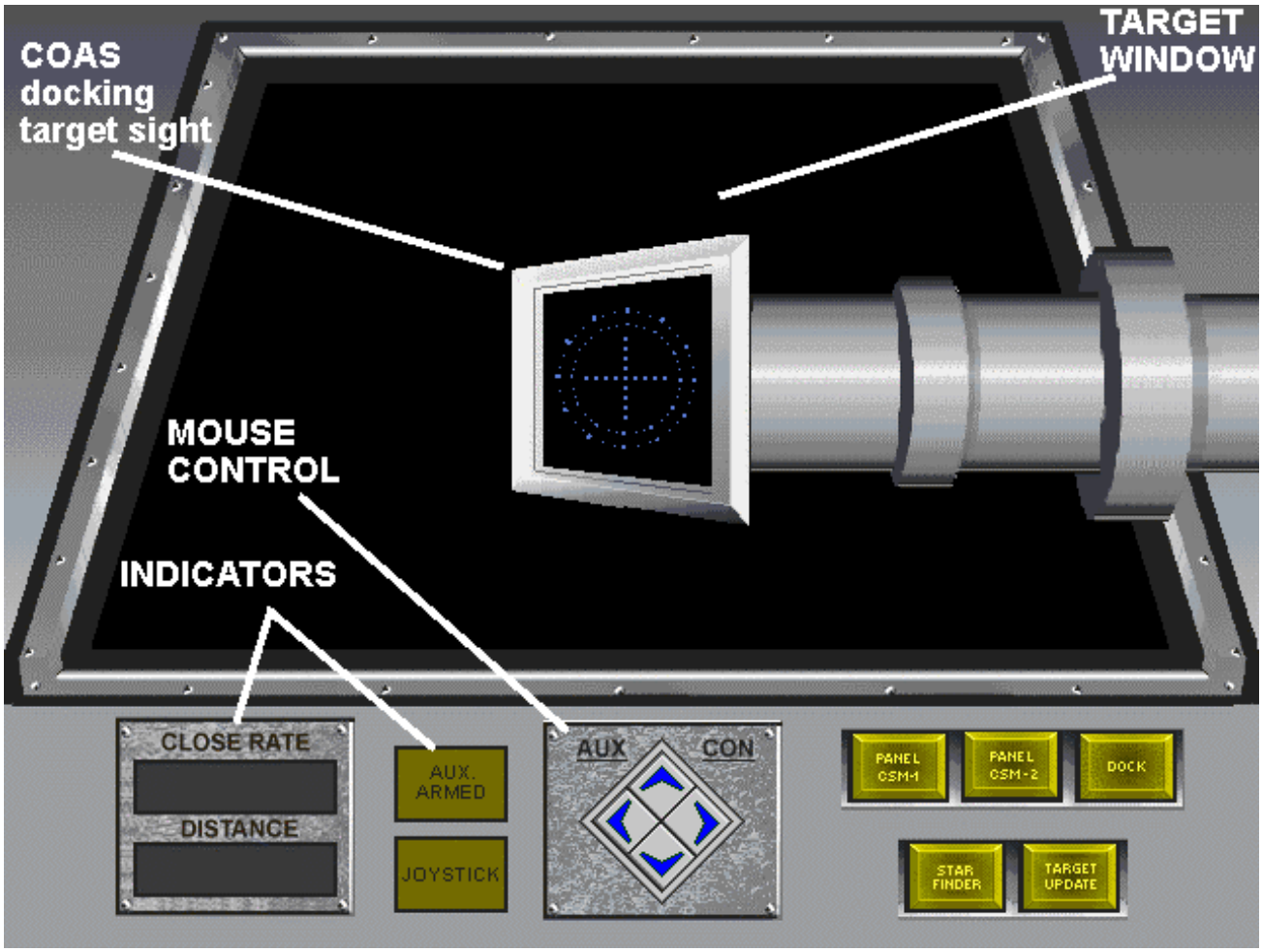
GIMBAL ANGLE DATA MUST BE PRECISE TO AVOID TRAJECTORY ERRORS & PROPELLANT WASTE.

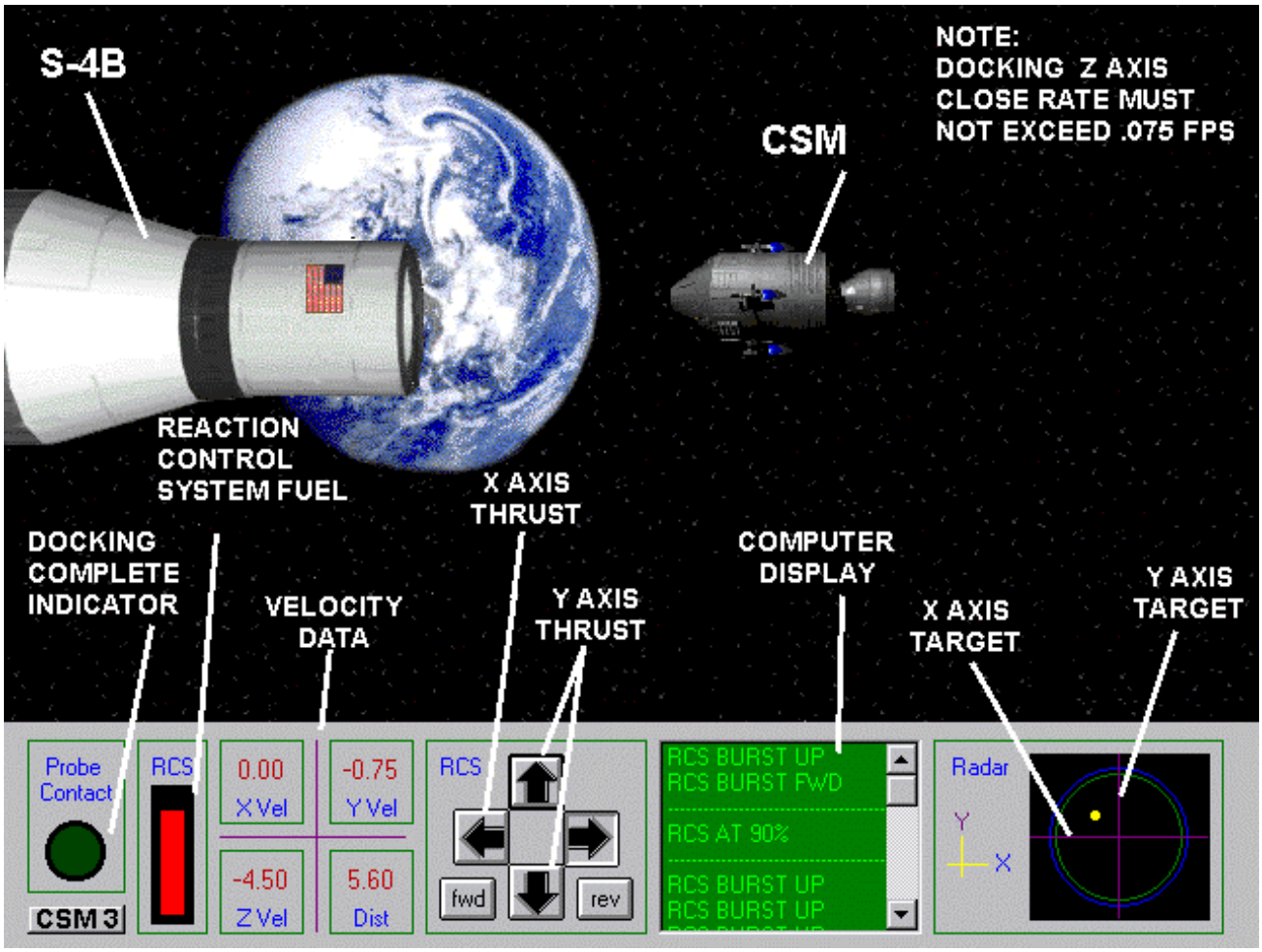
GNC COMPUTER CONTROLS ALL ENGINE BELL MOVEMENTS.

SET GIMBAL CONTROL FIXES ENGINE BELL FOR ENGINE FIRING.


LUNAR MODULE
DESCENT ENGINE
OXYGEN
COMPUTER
ENGINE
ABORT
GUIDANCE
HYDROGEN
9,870 LB.
GIMBAL
MOTOR
THRUST BELL

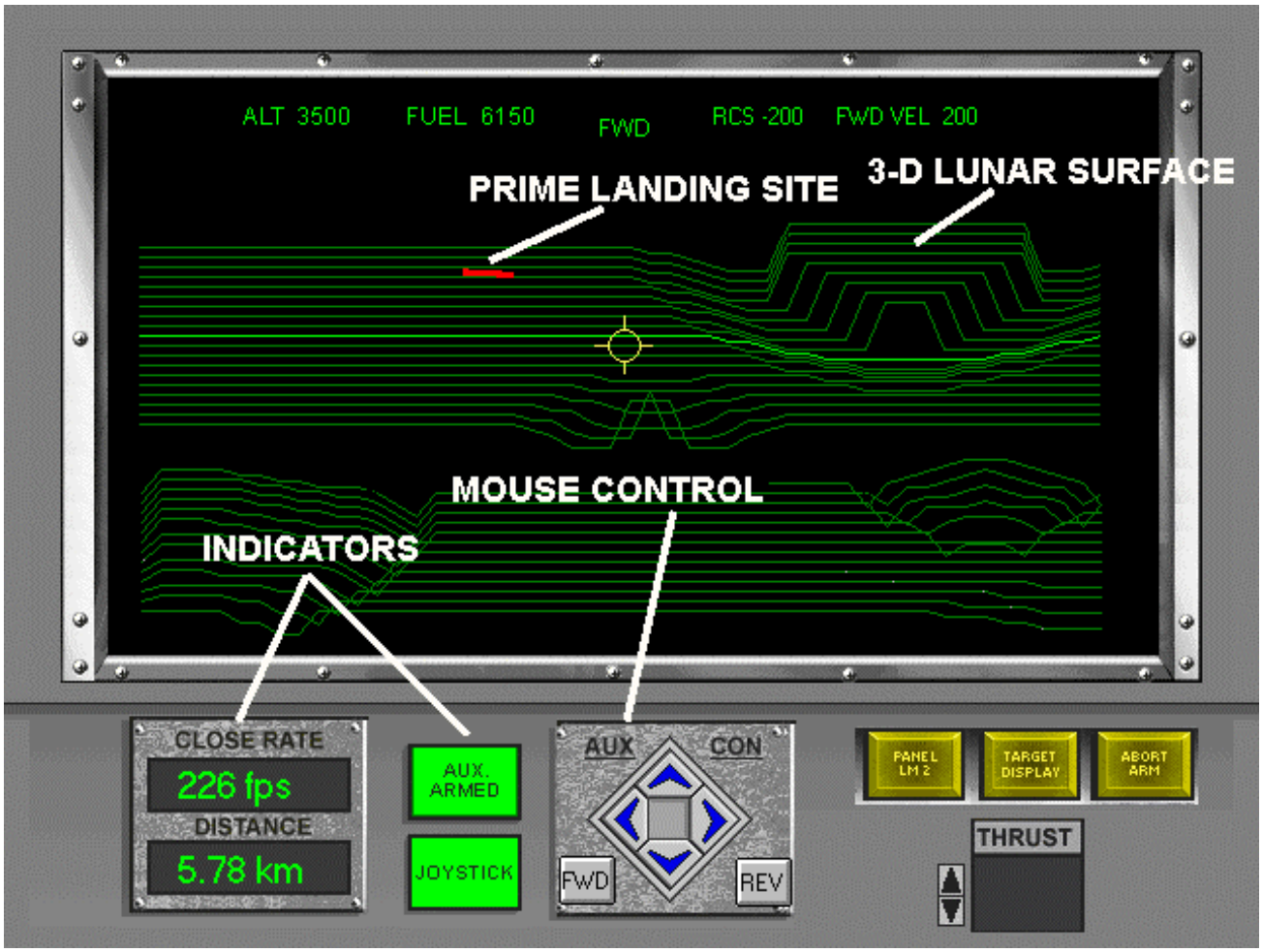

LUNAR MODULE
ASCENT ENGINE
OXYGEN
COMPUTER
ENGINE
PNGS
HYDROGEN
3,500 LB.
GIMBAL
MOTOR
THRUST BELL

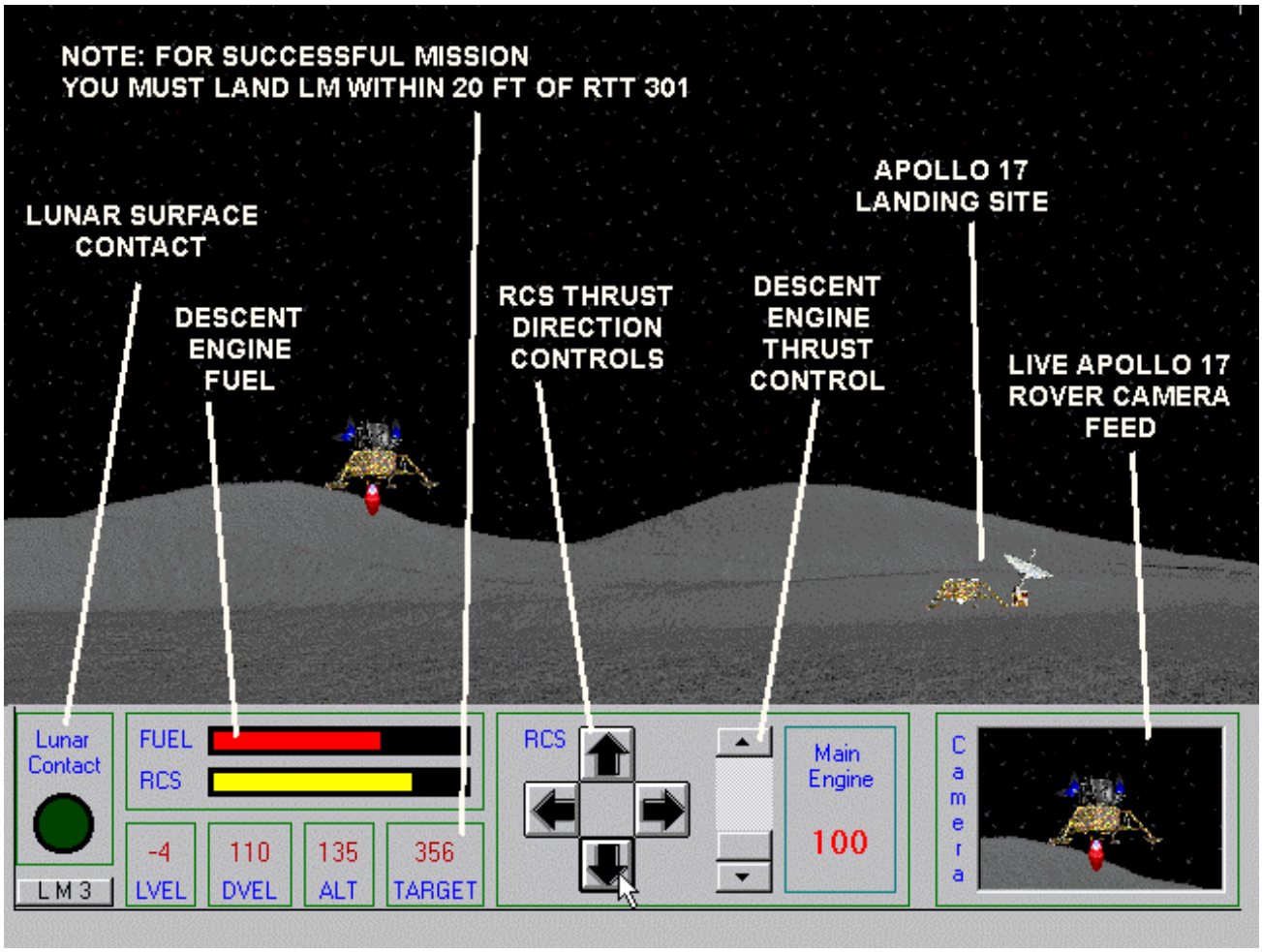

COAS
docking
target sight
TARGET
WINDOW
MOUSE
CONTROL
INDICATORS
CLOSE RATE
DISTANCE
AUX.
ARMED
JOYSTICK
AUX
CON
PANEL
CSM-1
PANEL
CSM-2
DOCK
STAR
FINDER
TARGET
UPDATE


S-4B
CSM
NOTE:
DOCKING Z AXIS
CLOSE RATE MUST
NOT EXCEED .075 FPS
REACTION
CONTROL
SYSTEM FUEL
X AXIS
THRUST
DOCKING
COMPLETE
INDICATOR
VELOCITY
DATA
Y AXIS
THRUST
COMPUTER
DISPLAY
X AXIS
TARGET
Y AXIS
TARGET
Probe
Contact
CSM 3
RCS
0.00
X Vel
-0.75
Y Vel
-4.50
Z Vel
5.60
Dist
RCS
fwd
rev
RCS BURST UP
RCS BURST FWD
RCS AT 90%
RCS BURST UP
RCS BURST UP
Radar
Y
X


DATA / RADAR DISPLAY
Entry Corridor Error
Temp 1800
REENTRY ANGLE
ATTACK ANGLE
MOUSE CONTROL
COORIDOR
G FORCE
3.4
-230
RADAR
SPS DATA
ECS RATES
REENTRY
UPDATE
GIMBLE RATES
GNCS RATES
INPUT
COMP STATUS
EXT CAM

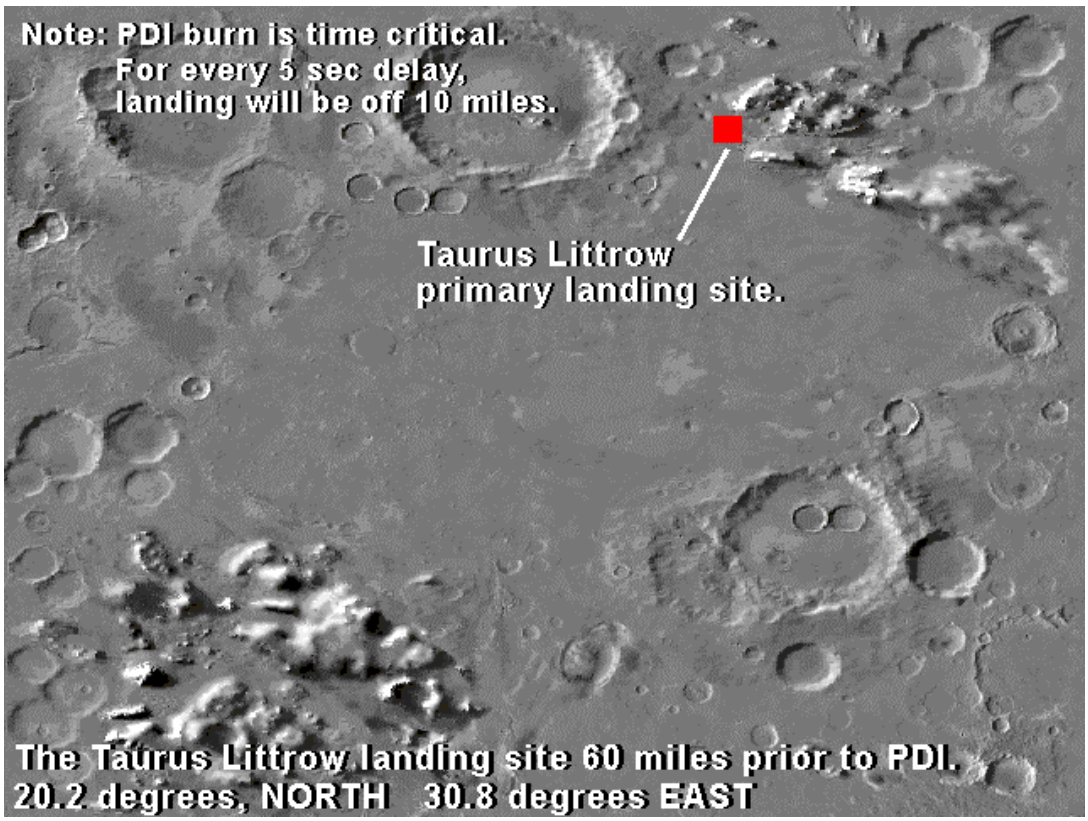

DATA / RADAR DISPLAY
OPTIMUM
SPACECRAFT LOCATION
APPROACH
Reentry Track
RADAR
SPS DATA
ECS RATES
REENTRY
UPDATE
GIMBLE RATES
GNCS RATES
INPUT
COMP STATUS
EXT CAM


ALT 3500
FUEL 6150
FWD
RCS -200
FWD VEL 200
PRIME LANDING SITE
3-D LUNAR SURFACE
MOUSE CONTROL
INDICATORS
CLOSE RATE
226 fps
DISTANCE
5.78 km
AUX. ARMED
JOYSTICK
AUX
CON
FWD
REV
PANEL LM 2
TARGET DISPLAY
ABORT ARM
THRUST


NOTE: FOR SUCCESSFUL MISSION
YOU MUST LAND LM WITHIN 20 FT OF RTT 301
LUNAR SURFACE CONTACT
DESCENT ENGINE FUEL
RCS THRUST DIRECTION CONTROLS
DESCENT ENGINE THRUST CONTROL
APOLLO 17 LANDING SITE
LIVE APOLLO 17 ROVER CAMERA FEED
Lunar Contact
LM 3
FUEL
RCS
-4
LVEL
110
DVEL
135
ALT
356
TARGET
RCS
Main Engine
100
Camera

LUNAR MAPS

JSC LUNAR GENERIC, REV G 7/72



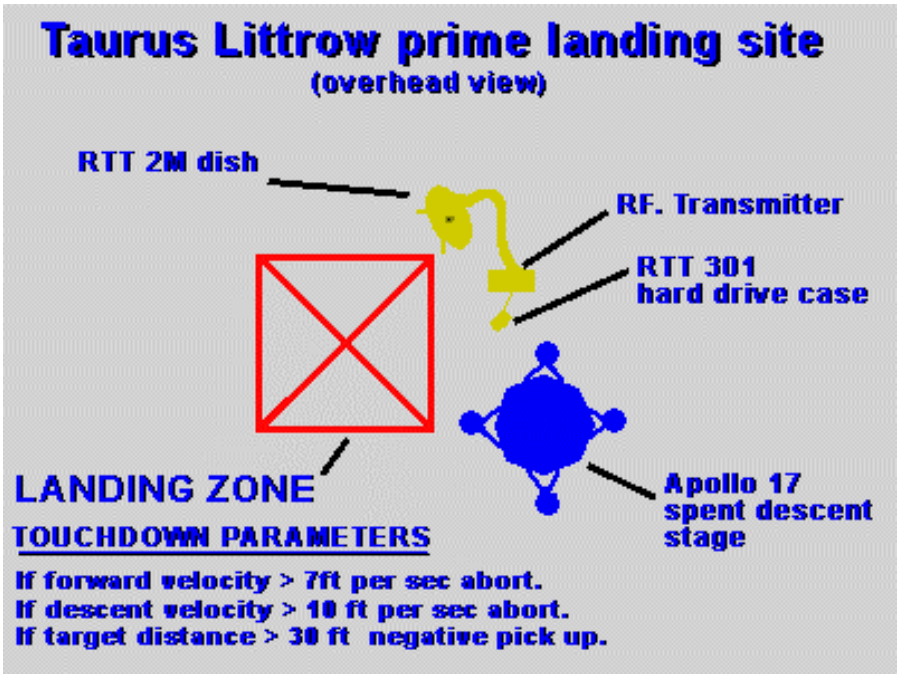
The Taurus Littrow landing site 60 miles prior to PDI.

X-133 DEGREES, North
Y-93 DEGREES, East

NOTE: PDI burn is time critical

For every five second delay landing will be 10K off IP.

If engine burn is delayed longer that 20 seconds hold for next orbit pass.



TAURUS LITTROW LANDING SITE

TOUCHDOWN PARAMETERS

Forward Velocity: If > than 7ft per scond auto abort landing

Descent Velocity: If > than 10ft per second auto abort landing

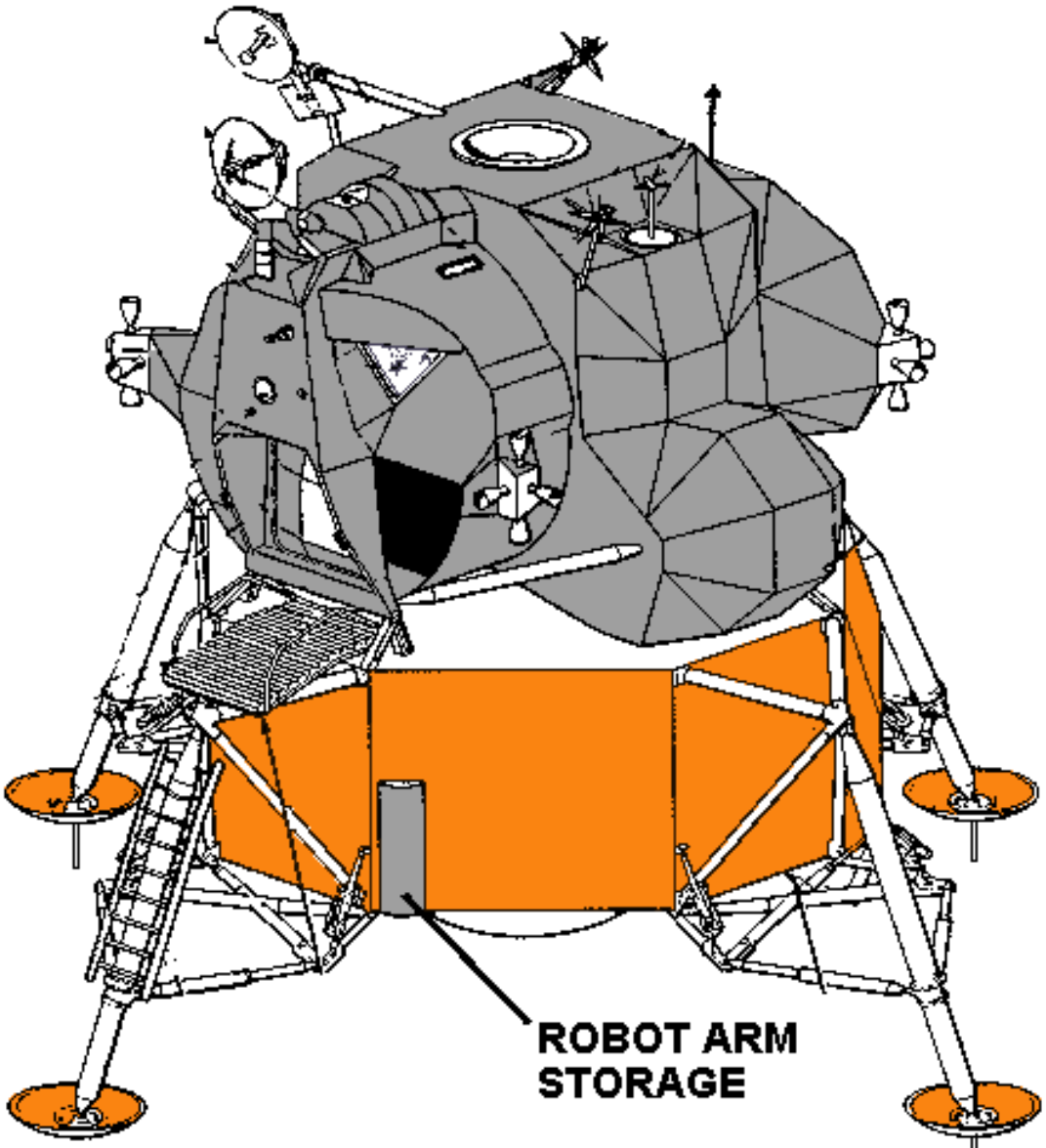
Target Distance: If > than 10 ft to RTT301 negative pick up

LM ascent fuel: If <than 10lbs then auto abort landing

RCS Fuel: If < than 3 lbs then auto abort landing

LANDING SITE DATA

JSC LUNAR GENERIC, REV G 7/72



LM MUST LAND APROX. 50 FT OR LESS FROM TARGET FOR CAPTURE.

ROBOT CPU IS PRE-PROGRAMED FOR EVA MANEUVER

LUNAR MODULE LANDING PROCEDURES

BEFORE LANDING ATTEMPT
COMPLETE ALL LM LANDING CONFIG.
STEPS AS PER CHECK LIST

DURING LUNAR DESCENT

1. MONITOR FUEL RESERVES
2. MONITOR LM CAUTION & WARNING
3. MONITOR DESCENT TRAJECTORY
4. MONITOR LM COMP. STATUS
5. MONITOR LM THRUST STATUS

MANUAL CONTROL IS GIVEN TO PILOT AT PITCHOVER PHASE

PILOT MUST USE LM LANDING DISPLAY RADAR (ALIGN SIGHT LM2) FOR ALL LUNAR LANDING ATTEMPTS.

LUNAR MODULE POST LANDING PROCEDURES

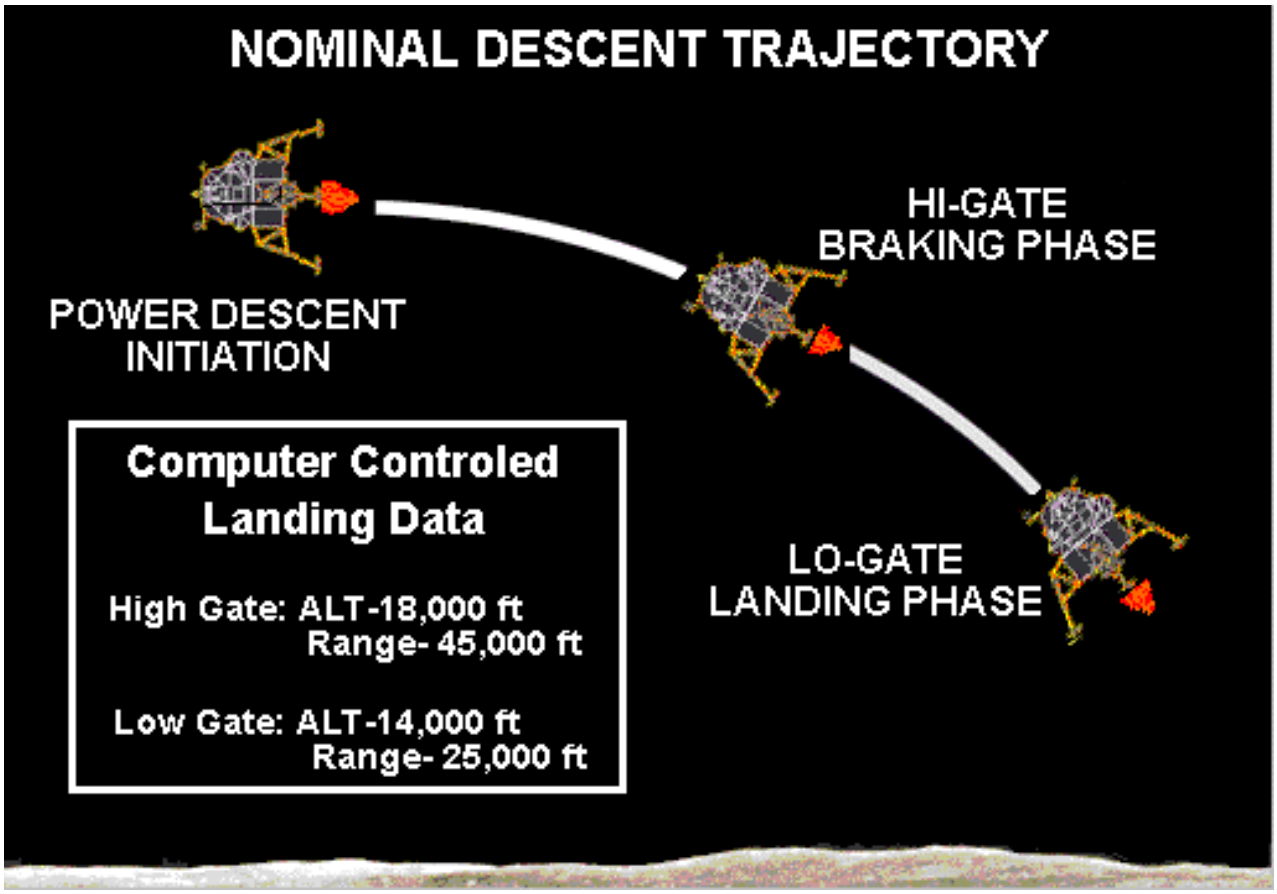
AFTER LUNAR TOUCHDOWN
COMPLETE ALL POST LANDING CONFIG. STEPS

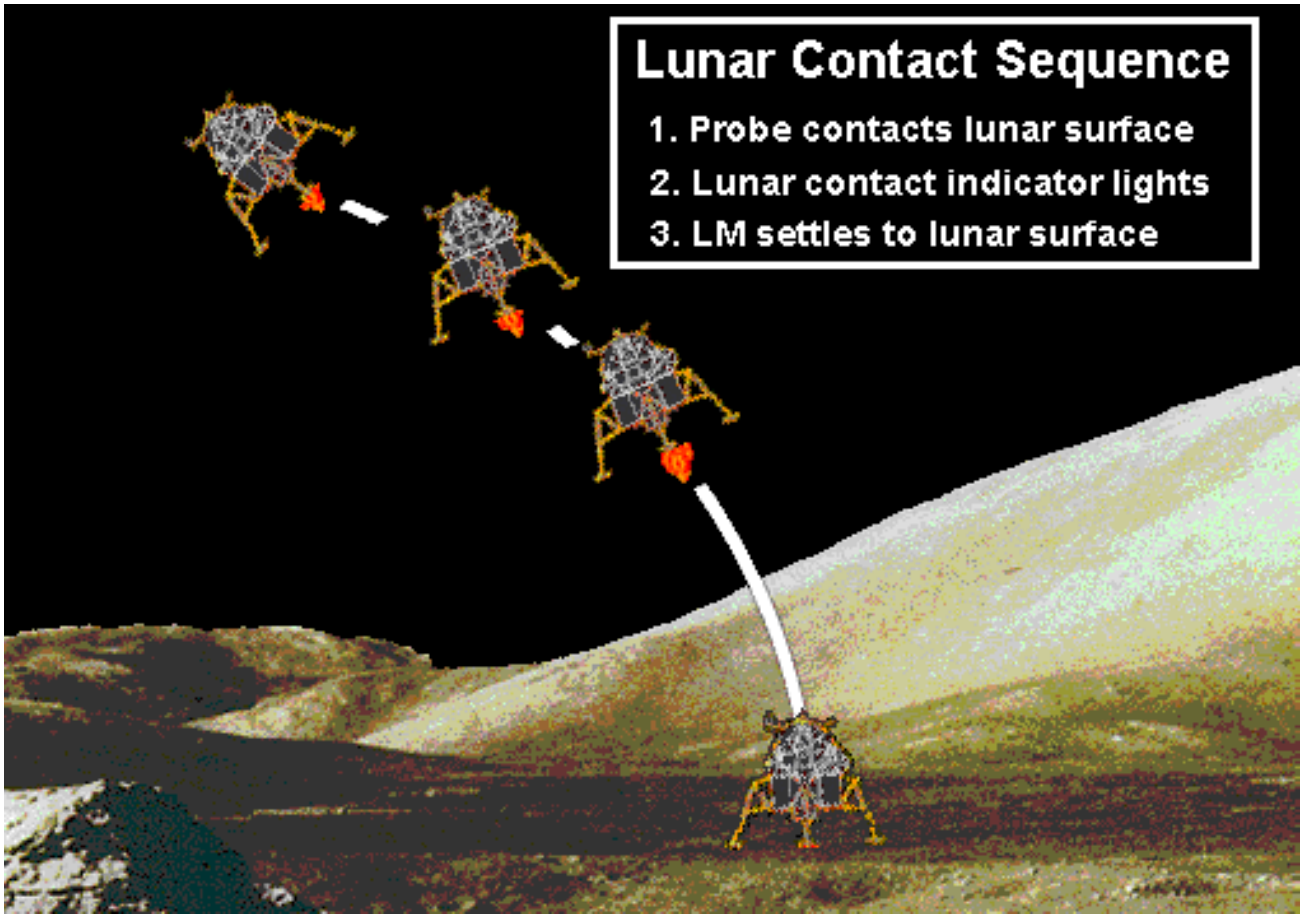
AFTER CONTACT LIGHT

1. MASTER ARM OFF
2. DESCENT ENGINE ARM OFF
3. MONITOR BATTERY LEVELS
4. MONITOR LM COMP. STATUS
5. MONITOR LM RCS FUEL QUANTITY
6. MONITOR LM ASCENT FUEL QUANTITY
7. BEGIN EVA PROCEDURES (see eva)

AUTO FUEL PUMPING (FUEL TIE LINE LM2) IS RECOMMENDED IF FUEL REMAINS IN DESCENT STAGE

CAUTION: EXPLOSION MAY OCCUR AT ASCENT IGNITION, IF DESCENT STAGE FUEL IS NOT REMOVED.


NOMINAL DESCENT TRAJECTORY
POWER DESCENT INITIATION
HI-GATE BRAKING PHASE
LO-GATE LANDING PHASE
Computer Controled Landing Data
High Gate: ALT-18,000 ft
Range- 45,000 ft
Low Gate: ALT-14,000 ft
Range- 25,000 ft


Lunar Contact Sequence
1. Probe contacts lunar surface
2. Lunar contact indicator lights
3. LM settles to lunar surface

LUNAR MODULE PRIMARY SYSTEM ELECTRICAL LOADS

PANEL (LM1) ENGINE GROUP 3.5 AMPS
PANEL (LM1) COMPUTER DISPLAY 3.2 AMPS
PANEL (LM1) ABORT ARM SYSTEM 2.0 AMPS
PANEL (LM1) C&W GROUP 1.0 AMPS
PANEL (LM2) RADAR GROUP 7.5 AMPS
PANEL (LM2) C&W GROUP 2.0 AMPS
PANEL (LM2) CRYOGENICS DISPLAY 1.5 AMPS
PANEL (LM2) IMU COMPUTER SYSTEM 2.5 AMPS
PANEL (LM2) ECS GROUP 3.2 AMPS
PANEL (LM2) PRIME COMPUTER 3.6 AMPS
PANEL (LM2) BACK UP COMPUTER 3.6 AMPS
PANEL (LM2) G/N COMPUTER SYSTEM 2.7 AMPS
PANEL (LM2) FUEL PUMP SYSTEM 1.8 AMPS
PANEL (LM2) EXT. CAMERA SYSTEM 4.2 AMPS

PANEL (LM3) TRAJECTORY DISPLAY 3.1 AMPS
PANEL (LM3) AUTO PILOT COMPUTER 3.2 AMPS
PANEL (LM3) FUEL SYSTEM 1.6 AMPS
PANEL (LM3) RCS GROUP 1.9 AMPS
PANEL (LM3 RADIO SYSTEM 2.5 AMPS
PANEL (LM3) ROBOT ARM 6.5 AMPS
PANEL (LM3) SCS 2.2 AMPS
PANEL (LM3) PNGS 2.6 AMPS
PANEL (LM3) AGS 1.3 AMPS
PANEL (LM3) TANK STIR 6.1 AMPS
PANEL (LM3) ENGINE HEATER 8.8 AMPS

56.5 TOTAL AMPS WITH ALL CRITICAL LUNAR MODULE SYSTEMS ACTIVATED.

WARNING: PILOTS MUST CONSERVE BATTERY POWER DURING LONG EVA MISSIONS. ALWAYS POWER DOWN NON-ESSENTIAL FLIGHT SYSTEMS