APOLLO SPACECRAFT
SEPARATION PLANES

LEMS
SM
CM
IU
Let
<table>
<thead>
<tr>
<th>ICD NUMBER</th>
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<td>MH01-05212-224</td>
<td>SLA/LEM SEP. SYS. UMBIL. ELECT.</td>
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<td>SLA/LEM SEP. SYS. UMBIL. MECH.</td>
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<tr>
<td>*BOM90503</td>
<td>FLIGHT MECHANICS PANEL INTERFACE CONTROL DOCUMENT FOR SATURN V/BLOCK II SC</td>
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<tr>
<td>13M50312</td>
<td>SC TO &quot;Q&quot; BALL PHYSICAL REQUIREMENTS</td>
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<tr>
<td>13M60004</td>
<td>EMC CRITERIA, APOLLO/SATURN</td>
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<tr>
<td>*4OM37521</td>
<td>SA-505/SC-104 ELECTRICAL INTERFACE</td>
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*Not signed as of 10/29/65
EARTH RECOVERY SUBSYSTEM

WE LOVE OUR ASTRONAUTS
OUTLINE

• PURPOSE

• REQUIREMENTS

• SUBSYSTEM DESCRIPTION

  MAJOR COMPONENTS
  PICTORIAL SCHEMATICS
  EVENTS SEQUENCE
  FUNCTIONAL SCHEMATICS (APPENDIX)

• DESIGN IMPLEMENTATION

  DRAWING TREE
  SPECIFICATIONS
  ICD'S

• PERSPECTIVES
ERS PURPOSE

• PROVIDE MEANS TO STABILIZE & DECELERATE CM FOLLOWING ENTRY OR ABORT, & PROVIDE VELOCITY & ATTITUDE AT EARTH IMPACT COMPATIBLE WITH IMPACT REQUIREMENTS

• PROVIDE ACCEPTABLE CREW ACCELERATIONS UPON IMPACT & AN ACCEPTABLE ENVIRONMENT FOR 48 HOURS FOLLOWING IMPACT

• PROVIDE PROVISIONS FOR LOCATING & RETRIEVING CM FROM SEA
ERS REQUIREMENTS SUMMARY

BASIC REQUIREMENTS OF THE ERS ARE SUMMARIZED. EARTH LANDING, IMPACT, FLOTAION, LOCATING AND RECOVERY FUNCTIONS ARE COVERED.
ERS REQUIREMENTS SUMMARY

- STABILIZE & DECELERATE CM FOLLOWING ENTRY OR ABORT
- PROVIDE VELOCITY & ATTITUDE COMPATIBLE WITH IMPACT REQUIREMENTS
- OPERATE SATISFACTORILY WHEN ONE DROGUE AND/OR ONE MAIN CHUTE FAILS
- OPERATE AUTOMATIC WITH MANUAL BACKUP
- INSURE ACCEPTABLE CREW ACCELERATIONS UPON IMPACT
- INSURE VEHICLE FLOTATION IN UPRIGHT ATTITUDE
- PROVIDE ANTENNAS & VISUAL LOCATING AIDS
- PROVIDE RECOVERY LIFTING LOOP
MAJOR COMPONENTS OF THE ERS ARE OUTLINED. THEY WILL BE DEPICTED ON LATER CHARTS. IT MAY BE NOTED THAT THE ERS IS NOT A SUBSYSTEM UNTO ITSELF, BUT CONSISTS OF THREE ESSENTIALLY COMPLETE AND TWO PARTIAL SUBSYSTEMS.
MAJOR COMPONENTS

EARTH LANDING SEQUENCE CONTROLLER

PARACHUTES & RELATED EQUIPMENT
- DUAL DROGUES, MORTARS
- THREE MAINS, PILOTS, MORTARS
- REEFING LINES & CUTTERS
- DROGUE & MAINS DISCONNECTS

EARTH IMPACT
- FOUR CRUSHABLE RIBS
- EIGHT ATTENUATION STRUTS
- CREW COUCHES
- CM STRUCTURE

FLOTATION/UPRIGHTING
- BAGS
- PUMP, LINES, VALVES
- CONTROLS

POSTLANDING LOCATION & RECOVERY AIDS
- ANTENNAS
- FLASHING LIGHT
- SEA MARKER
- SWIMMER UMBILICAL
- LIFTING LOOP
THE EARTH LANDING SYSTEM PARACHUTES AND DEPLOYMENT SEQUENCE ARE DESCRIBED.
EARTH LANDING SYSTEM PARACHUTES

DROGUE CHUTES (2)
CONICAL FIST RIBBON TYPE
MORTAR DEPLOYED
(REEFED FOR 8 SEC)
13.7 FT DIAMETER
11.0 FT NOMINAL
INFLATED DIAMETER

PILOT CHUTES (3)
RING SLOT
MORTAR DEPLOYED
7.2 FT DIAMETER
6.0 FT NOMINAL
INFLATED DIAMETER

MAIN CHUTES (3)
RING SAIL
DEPLOYED BY PILOT CHUTES
(REEFED FOR 8 SEC)
83.5 FT DIAMETER
77.0 FT NOMINAL
INFLATED DIAMETER
THE DROGUE PARACHUTE IS PICTURED WITH SALIENT FEATURES INDICATED. THE DROGUES DECELERATE AND ORIENT THE CM FOR SAFE DEPLOYMENT OF THE MAIN LANDING PARACHUTES. THERE ARE TWO DROGUE CHUTES, DEPLOYED INDEPENDENTLY BY MORTARS. THEY ARE DEPLOYED AND MAINTAINED IN A REEFED CONDITION FOR EIGHT SECONDS BEFORE OPENING FULLY. SAFE RECOVERY CAN BE MADE WITH A SINGLE DROGUE.
FIST RIBBON PARACHUTE
(DROgue)

VENT LINE

VENT REINFORCING BAND

REINFORCING BANDS

RADIAL RIBBON

SKEIR T REINFORCING BAND

HORIZONTAL RIBBON

VERTICAL RIBBON

SUSPENSION LINE
RING SLOT PARACHUTE
(Pilot)

The pilot parachute is pictured with salient features indicated. There are three pilots, each deployed by mortars located beside their respective main landing parachute. Their function is to deploy the main chutes.
RING SLOT PARACHUTE
(Pilot)

VENT LINE
VENT REINFORCEMENT
SLOT
REINFORCEMENT BAND
Panel
RADIAL TAPE
VERTICAL TAPE
SKIRT REINFORCEMENT
ATTACHMENT LOOP
SUSPENSION LINE

DRAG SURFACE
GORE (FROM SKIRT TO VENT-BETWEEN SUSPENSION LINES)
RING SAIL PARACHUTE
(MAIN)

The main parachute is pictured with salient features indicated. These chutes provide earth landing within impact tolerances. They are deployed by the pilot chutes in a reefed condition and disreefed after eight seconds. There are three of these chutes; successful recovery can be made.
RING SAIL PARACHUTE
(MAIN)

GORE (FROM SKIRT TO VENT)
68 GORES TOTAL

SLOTS

MAIN OR RADIAL SEAM

CANOPY

PANELS ("SAILS" ON RINGSAIL CHUTE)
(12 PER GORE)

SKIRT

68 SUSPENSION LINES
REEFING LINES

The parachute reefing lines are pictured. Each drogue chute has two reefing lines with two reefing line cutters on each line. Each main chute has two reefing lines with three cutters on each line. Cutters are equally spaced about the circumference for all chutes.
REEFING LINES

- Canopy
- Reefing Lines
- Reefing Ring
- Suspension Line
REEFING LINE CUTTER

THE PARACHUTE REEFING LINE CUTTER IS PICTURED. WHEN THE FIRING PIN IS PULLED A TIME DELAY FUSE (EIGHT SEC.) IS IGTITED WHICH IN TURN EXPLODES A SMALL CHARGE. THIS CHARGE DRIVES A CUTTING BLADE AGAINST AN ANVIL, SEVERING THE REEFING LINE.
REEFING LINE CUTTER INSTALLATION

TYPICAL REEFING LINE CUTTER INSTALLATION IS PICTURED. WHEN THE SUSPENSION LINE/CANOPY IS FULLY SKETCHED OUT, THE LANYARD ACTUATES THE FIRING PIN.
REEFING LINE CUTTER INSTALLATION

REEFING LINES

REEFING LINE CUTTER

SUSPENSION LINE

LANYARD

SKIRT BAND
PARACHUTE DEPLOYMENT MORTARS

THE DROGUE AND PILOT PARACHUTE MORTARS ARE PICTURED. THERE ARE TWO DROGUE AND THREE PILOT CHUTE MORTARS LOCATED ON THE CM UPPER DECK. REDUNDANT GAS PRESSURE CARTRIDGES FIRED BY REDUNDANT CIRCUITRY OF THE EISC GENERATE GAS PRESSURE WITHIN THE MORTARS TO EXPEL THE CHUTES BY ACTUATING A SABOT.
PARACHUTE DEPLOYMENT MORTARS

DROGUE

PILOT
PARACHUTE DISCONNECT

THE PARACHUTE DISCONNECT MECHANISM IS ILLUSTRATED. THE BLADE HOUSING CONTAINS FIVE CUTTING BLADES WHICH ARE ACTIVATED BY SEPARATE GAS CARTRIDGES. DUAL INITIATORS ARE PROVIDED FOR EACH CARTRIDGE. THE TWO DROGUE RISERS AND THE THREE MAIN RISERS ARE CUT SIMULTANEOUSLY ON RECEIPT OF THEIR RESPECTIVE SIGNAL.
EARTH LANDING SYSTEM
NORMAL SEQUENCE

1. APEX COVER JETTISONED BY 24,000 FT + .4 SEC
2. DROGUE CHUTES DEPLOYED BY 24,000 FT + 2 SEC
   (REEFED FOR 8 SEC)
3. DROGUE CHUTES DISREEFED
4. PILOT CHUTES DEPLOYED & DROGUE CHUTES
   RELEASED BY 11,000 FT
5. MAIN CHUTES DEPLOYED BY 11,000 FT
   (REEFED FOR 8 SEC)
6. MAIN CHUTES DISREEFED & RECOVERY ANTENNA
   DEPLOYED
7. MAIN CHUTES RELEASED AFTER TOUCHDOWN
SEQUENTIAL EVENTS OF THE EARTH LANDING SEGMENT OF FLIGHT ARE PICTURED IN BLOCK DIAGRAM
LOGIC. THESE EVENTS ARE CONTROLLED BY THE EARTH LANDING SYSTEM SEQUENCE CONTROLLER.
APOLLO ENTRY EVENTS SEQUENCE

- Pilot control
- Arm ELS logic bus
- Safe MESC logic busses
- Arm ELS pyro bus
- 25,000 foot baro switch closes (ALT = 25,000 ft)
- Jettison fwd heat shield
- Turn off CM RCS
- Deploy drogue chutes
- Enable 13,000 foot baro sw
- 12,000 foot baro switch closes
- Deploy pilot & main chutes
- Release drogue chutes
- Dump remaining RCS fuel (all jet burn mode)
- Purge RCS fuel & oxidizer lines
- Contact earth
- Release main chutes
A functional block diagram of the ELSC is given for the normal recovery sequence.

Redundant systems A and B are illustrated.
EARTH LANDING SEQUENCE CONTROLLER FUNCTIONAL BLOCK DIAGRAM
EARTH IMPACT SUBSYSTEM

This chart illustrates the main features which have been incorporated into the CM in order to provide acceptable impact conditions. These include attenuation struts, crushable ribs, strength in heatshield and basic CM structure and impact attitude optimization (hang angle).
CRUSHABLE RIBS

HANG ANGLE

27.50

RISER

PARACHUTE ATTACH FITTINGS

TYPICAL SHOCK ATTENUATOR
CRUSHABLE RIBS

THERE ARE FOUR CRUSHABLE HONEYCOMB CORE RIBS LOCATED ON THE +Z SIDE OF THE CM FOR
PURPOSES OF IMPACT ATTENUATION. THIS FIGURE OF THE CM INNER SHELL AND RIBS ILLUSTRATES
THE SIZE AND LOCATION OF THE RIBS.
THE ARRANGEMENT OF THE UNITIZED CREW COUCHES AND SHOCK ATTENUATION SHUTES ARE PICTURED.

THESE ARE A TOTAL OF EIGHT SHUTES: FOUR X-X, TWO Y-Y AND TWO Z-Z. SUBSEQUENT CHARTS
DEPICT THE INTERNAL DESIGN OF THE SHUTS.
APOLLO COMMAND MODULE ATTENUATION SYSTEM AND CREW
CREW SUPPORT SYSTEM ENVELOPE OF TRAVEL

THE MAXIMUM ENVELOPE PROVIDED FOR ASTRONAUT/COUCH TRAVEL IS GRAPHICALLY DEPICTED.
CREW SUPPORT SYSTEM ENVELOPE OF TRAVEL

- MAIN DISPLAY CONSOLE
- RENDEZVOUS WINDOW
- LOWER EQUIP BAY
- ATTENUATION ENVELOPE
- COUCH REF POINT
  - $X_C = 35.00$
  - $Z_C = 1.75$
- COUCH REF PLANE 2° BACK ANGLE
- SEATPAN - FOOT REST ASSY IN LANDING (66°) POSITION
- 435
ATTENUATING STRUT FRICTION MECHANISM

ATTENUATING STRUT FRICTION MECHANISM

HONEYCOMB CORE
INNER SPRING
PISTON
END CAP

FRICION SHOE
FRICION SHOE

RAMP SUPPORT
OUTER SPRINGS
RAMP
ADJUSTING NUT
HONEYCOMB CORE
ATTENUATING STRUT LOCKOUT MECHANISM

LOCKOUT MECHANISMS ARE MOUNTED ON THE FOUR X-X STRUTS TO PREVENT STROKING FROM FLIGHT LOADS. THE DEVICES ARE NORMALLY UNLOCKED ELECTRICALLY, BUT ARE DESIGNED WITH MANUAL OVERRIDE AND AUTOMATIC BREAKOUT CAPABILITY.
ATTENUATING STRUT LOCKOUT MECHANISM
ATTENUATING STRUT WRAPPED SPIRAL HONEYCOMB CORE

THE HONEYCOMB CORE THAT IS MOUNTED WITHIN EACH ATTENUATING STRUT IS PICTURED.
ATTENUATING STRUT WRAPPED SPIRAL HONEYCOMB CORE
UPRIGHTING

This basic function of the uprighting bags is described - proper sequential inflation of any two of the three bags provided will upright the CM to a stable I attitude. The bags are inflated by two compressors (for redundancy) operating simultaneously. The compressors, which are located in the lower equipment bay, are activated by switching to the fill mode for any one of the three bags. A separate switch is provided for each bag.
UPRIGHTING

STABLE I
(UPRIGHT)

STABLE II
(INVERTED)
THIS CHART SHOWS THE TYPICAL STOWAGE ARRANGEMENT OF THE MAIN PARACHUTE AND UPRIGHTING SYSTEM BAGS.
LOCATION AND RETRIEVAL OF THE ASTRONAUTS AND CM WILL BE AIDED BY ONE VHF AND TWO HF ANTENNAS, A HIGH INTENSITY FLASHING LIGHT, SEA DYE MARKER AND SWIMMER UMBILICAL AND RECOVERY LIFTING LOOP. THESE ITEMS ARE ILLUSTRATED BY THIS CHART.
POST LANDING & RETRIEVAL

- HF
- POST LANDING & RETRIEVAL
- FLASHING LIGHT
- RECOVERY LIFTING LOOP
- DYE MARKER & SWIMMER UMBILICAL

115AP83646
RECOVERY AIDS

This chart is a pictorial elevation showing basic location and installation features of the recovery beacon light, sea dye marker and HF antenna. The stowed and post-landing position is shown for the beacon light. The other equipment is shown in the pre-deploy configuration.
RECOVERY AIDS

RECOVERY BEACON LIGHT
POST LANDING POSITION

RECOVERY BEACON LIGHT
STOWED POSITION

BEACON LIGHT POWER
SUPPLY

GUSSET 2

FAIRING

DROGUE CHUTE MORTAR

SEA DYE MARKER & SWIMMER
UMBILICAL

HF ANTENNA

GUSSET 3

LET UMBILICAL CONNECTOR
RECOVERY AIDS AND THRUSTORS

THIS CHART IS A PICTORIAL ELEVATION SHOWING THE RELATIVE LOCATION AND INSTALLATION ARRANGEMENT OF CERTAIN RECOVERY AIDS, THRUSTORS AND OTHER EQUIPMENT IN THE UPPER DECK AREA.
RECOVERY AIDS & THRUSTERS

VHF RECOVERY ANTENNA POST LANDING POSITION

VHF RECOVERY ANTENNA

LET UMBILICAL CONNECTOR

GUSSET 4

THRUSTER BREECH

HEAT SHIELD THRUSTER

GUSSET 4

LEM DOCKING LATCH IN LATCHED POSITION

LEM DOCKING LATCH IN DISENGAGED POSITION

GUSSET 1

PILOT CHUTE MORTAR
ERS EQUIPMENT ARRANGEMENT

This view of the upper deck shows the ERS components and other equipment located in this area of the CM.
EARTH LANDING SYSTEM SPECIFICATIONS

ME 901-0579  PARACHUTE PROCUREMENT
MC 901-0579A PARACHUTE PROCUREMENT
MA 0202-0029  INSTALLATION
MA 0201-3157  DROP TESTS
## IMPACT SYSTEM SPECIFICATIONS

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<th>Document Code</th>
<th>Description</th>
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<td>MA 0308-0053</td>
<td>ASSY &amp; CALIBRATION SPEC - STRUTS</td>
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<td>MA 0304-0047</td>
<td>STRUT LOCKOUT ASSY &amp; CHECKOUT</td>
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<tr>
<td>MA 0308-0054</td>
<td>STRUT INSTALLATION SPEC</td>
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<tr>
<td>ME 287-0011</td>
<td>STRUT LOCKOUT ACTUATOR</td>
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<td>MC 287-0011</td>
<td>STRUT LOCKOUT ACTR PROC. SPEC.</td>
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<td>RIBS</td>
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<td>MC 901--381</td>
<td>RIBS PROCUREMENT SPEC</td>
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<tr>
<td>ME 475-0003</td>
<td>STRUT CRUSHABLE CORES</td>
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<tr>
<td>MC 475-0003</td>
<td>STRUT CORE PROC. SPEC</td>
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UPRIGHTING SYSTEM SPECIFICATIONS

MA0301-0044  BAG FOLDING
MA0201-3387  SYSTEM CHECKOUT
MA0201-0926  FUNCTIONAL TEST - COMPRESSOR
MA0201-0927  FUNCTIONAL TEST - SOLENOID VALVE
MA0201-3147  FUNCTIONAL TEST - RELIEF VALVE
MA0201-3148  FUNCTIONAL TEST - CHECK VALVE

PROCUREMENT SPECIFICATIONS

ME281-0020  COMPRESSOR
MC281-0020

ME284-0283  CHECK VALVE
MC284-0283

ME284-0314  RELIEF VALVE
MC284-0314

ME284-0285  SOLENOID VALVE
MC284-0285

ME  AIR BAG (NOT ASSIGNED TO DATE)
MC
RECOVERY AIDS SPECIFICATIONS

MARKER ASSEMBLY - LOCATION MARINE
MC 901-0139 "B" & PDC 1, 2, 3, & 4
ME 901-0139 "D" (SPECIFICATION CONTROL DRAWING)

ME 434-0038 NC & PDC-1
LIGHT, FLASHING

ME 464-0095 NC & PDC 1 & 2
POWER SUPPLY

MA 0203-0341 PROCESS SPEC
FLASHING LIGHT & POWER SUPPLY
PREINSTALLATION, PREPARATION & CHECKOUT, PROCEDURE FOR.
IMPACT

NONE
### APOLLO RELIABILITY
### CREW SAFETY SINGLE POINT FAILURE SUMMARY

**SUBSYSTEM:** Earth Landing

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<th>NAME</th>
<th>PART NUMBER</th>
<th>FAILURE MODE</th>
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<tbody>
<tr>
<td>Drogue &amp; main chute riser attach disconnect assembly</td>
<td>VJ6-596002-11</td>
<td>1. Structural failure</td>
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<td></td>
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<td>2. Failure to release chutes</td>
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<tr>
<td>Drogue mortar orifice</td>
<td>R6968-13</td>
<td>1. Clogged</td>
</tr>
<tr>
<td>Pilot mortar orifice</td>
<td>R6048-5</td>
<td>1. Clogged</td>
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<tr>
<td>Drogue mortar cartridge</td>
<td>ME453-0005</td>
<td>1. Premature firing</td>
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<tr>
<td>Pilot mortar cartridge</td>
<td>ME453-0005</td>
<td>1. Premature firing</td>
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</table>
**APOLLO RELIABILITY**
**CREW SAFETY SINGLE POINT FAILURE SUMMARY**

**SUBSYSTEM:** Impact

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<th>FAILURE MODE</th>
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<td>Crew Couch Strut Assemblies</td>
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<td>X-X Foot</td>
<td>V16-571411</td>
<td>2. Core crush strength out of tolerance</td>
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<td>X-X Head</td>
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<td>Z-Z Axis</td>
<td>V16-571314</td>
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<td>Y-Y Axis</td>
<td>V16-571016</td>
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SEQUENTIAL EVENTS CONTROL SUBSYSTEM
(SECS)

PURPOSE OF SUBSYSTEM SHALL BE TO PROVIDE AUTOMATED, SEMI-AUTOMATIC, OR MANUAL CONTROL DURING APOLLO MISSION, TO PERFORM FUNCTIONS RELATED TO LAUNCH ESCAPE, EARTH RECOVERY & SEPARATION FUNCTIONS WITHIN APOLLO SPACECRAFT

REF: SID64-1344 BLK II TECHNICAL SPEC
SID64-1345 BLK II MEI SPEC
THIS CHART ILLUSTRATES THE LEM DOCKING AND SEPARATION FUNCTIONS ADDED TO THE NORMAL MISSION BLOCK I FUNCTION. THE SUBSEQUENT CHARTS DEPICTING ABORT FUNCTIONS INDICATE NO ADDED BLOCK II REQUIREMENTS.
NORMAL MISSION

• TOWER JETTISON
• CSM-ADAPTER SEPARATION
★ LEM DOCKING
★ LEM-SLA SEPARATION
★ LEM DOCKING
★ FINAL SEPARATION (LEM/CM)
• CM/SM SEPARATION
• APEX COVER JETTISON
• DEPLOY DROGUE CHUTES
• DISCONNECT DROGUE CHUTES & DEPLOY PILOT CHUTES
• RCS PROPELLANT BURN & SYSTEM PURGE
• DISCONNECT MAIN CHUTES

★ADDED BLK II FUNCTIONS

464
LES ABORT

- BOOSTER CUTOFF
- CM/SM SEPARATION
- RCS OXIDIZER DUMP (<42 SECONDS)
- CANARD DEPLOY
- TWR JETTISON
- APEX COVER DEPLOY
- DROGUE CHUTE DEPLOY
- MAIN CHUTE DEPLOY
- RCS PROPELLANT DUMP/BURN & PURGE
SPS ABORT

- BOOSTER CUTOFF
- DIRECT ULLAGE - ON
- ADAPTER SEPARATION
- ENABLE RCS
- DIRECT ULLAGE - OFF
SECS

INTERFACES - SUBSYSTEMS

- EARTH LANDING
- REACTION CONTROL
- ELECTRICAL POWER
- EMERGENCY DETECTION
- TELECOMMUNICATIONS
- LAUNCH ESCAPE
- DISPLAYS & CONTROLS
- STABILIZATION & CONTROL
- GUIDANCE & CONTROL
THE SECS IS A DUAL REDUNDANT SYSTEM WITH RELAY CONTACTS PROVIDING SYSTEM CROSSOVER FUNCTIONS. ILLUSTRATED HERE IS ONE HALF OF THE DUAL SYSTEM. THE NEW BLOCK II FUNCTIONS ARE LOCATED IN THE LDEC.

SINCE THE FUNCTIONS OF THE MESC, ELSC, PCVB, SMJC AND THE CM-RCSC ARE THE SAME AS BLOCK I (APRM 012), THIS BRIEFING WILL BE SLANTED TOWARD THE EXPLANATION OF THE LDEC.

BLOCK DIAGRAM - SECS

MESC

SPS
LES

ELSC

PMVC

SMJC

CM-RCSC

LDEC

LUNAR DOCKING
EVENTS CONTROLLER

★ADDED BLOCK II COMPONENT
BLOCK II ADDED FUNCTIONS

- LEM DOCKING
- PROBE RETRACT (INITIAL & FINAL)
- DOCKING RING SEPARATION
- LEM-SLA SEPARATION
- PITCH CONTROL MOTOR CUTOUT
BLOCK II ASSEMBLIES (NEW)

- LDEC (LUNAR DOCKING EVENTS CONTROLLER)
- PROBE RETRACT (INITIAL & FINAL)
- PITCH CONTROL MOTOR CUTOUT
- PYRO BUS ARM MOTOR SWITCH
- FINAL SEPARATION (LEM/CM)
- LEM-SLA SEPARATION
PORTIONS OF THE DISPLAY AND CONTROL PANELS SHOWN HERE ILLUSTRATE THOSE FUNCTIONS ASSOCIATED WITH THE SECS. EDC FUNCTIONS ARE COVERED IN THE PORTION OF THIS BRIEFING COVERING THE DISPLAY AND CONTROLS. THE RELATIONSHIP OF THE PANEL COMPONENT TO THE SYSTEM CIRCUITRY MAY BE OBTAINED THROUGH EXAMINATION OF THE SYSTEM SCHEMATIC.
THE TOP INSTALLATION AND ASSEMBLY DRAWINGS, THE SPECIFICATION CONTROL DRAWINGS AND CHECKOUT SPECIFICATIONS ARE SHOWN ON THIS CHART. A COMPLETE DOCUMENTATION TREE CAN BE OBTAINED IN THE APPENDIX.
SECS DOCUMENTATION TREE

V37-200001
SM SYS INSTL

V37-540001
INSTL

RELEASE DATE: 11/27/65

ME901-0569-0008
SM JC (AUTONETICS)
BME-MA0205-0544

COMPLETED & RELEASED

V36-000002
CM SYS INSTL

V36-500001
MECH SYS INSTAL

V36-540001
INSTL

RELEASE DATE: 10/15/65

V36-954001
DESIGN
LAYOUT
INSTALL

SYSTEM FUNCTIONAL
CHECKOUT SPEC
MA0205-0041
RELEASE DATE: 1/14/66

ME901-0567-0008
MESC (AUTONETICS)
BME-MA0205-0098

COMPLETED & RELEASED

ME901-0001-0019
ELSC (NV)
BMEMA0205-0098

COMPLETED & RELEASED

BME
MA0205-0639
RELEASE DATE: 10/30/65

FUNC TEST
MA0205-0612
RELEASE DATE: 9/30/65

V16-540130
PCVB ASSY

COMPLETED & RELEASED

ME476-0035-0001
LDEC (AUTONETICS)
BMEMA0205-0042

RELEASE DATE: 1/7/66

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<td>MH01-05214-424</td>
<td>SLA-LEM SEPARATION SYSTEM- FUNCTIONAL</td>
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<td>EQUIPMENT DESCRIPTION</td>
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<tr>
<td>No known crew safety single point failures</td>
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EIGHT OF THE TEN SECS COMPONENTS ARE LOCATED IN THE COMMAND MODULE; THE OTHER TWO IN THE SERVICE MODULE. THE GENERAL LOCATIONS ARE SIMILAR TO BLOCK I. LOCAL RELOCATION WAS ACCOMPLISHED TO AFFECT IMPROVED SPACE EFFICIENCY REQUIRED FOR BLOCK II CHANGES INCLUDING THE ADDITION OF THE LEDC.