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SID 65-1642B

CSM MEASUREMENT REQUIREMENTS
SPECIFICATION
FOR
BLOCK II SPACECRAFT
APOLLO CSM SYSTEM

1 January 1969 NAS 9-150

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G. W. Jeffs,
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SPACE DIVISION
NORTH AMERICAN ROCKWELL CORPORATION

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

CONFIGURATION CHART

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NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION

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CSM MEASUREMENT REQUIREMENTS SPECIFICATION FOR BLOCK II SPACECRAFT APOLLO CSM SYSTEM

1. SCOPE

1.1 Scope.- This document establishes the Flight Operational Measurements, ACE-S/C Stimuli and Measurements, Flight Qualification Measurements and the Scientific Experiment Measurements for all Block II spacecraft.

1.2 Objective.- This document shall provide the measurement and stimuli requirements for Apollo CSM system hardware and supporting acceptance checkout equipment.

2. APPLICABLE DOCUMENTS

2.1 Applicability.- Not Applicable.

2.2 Precedence.- Not Applicable.

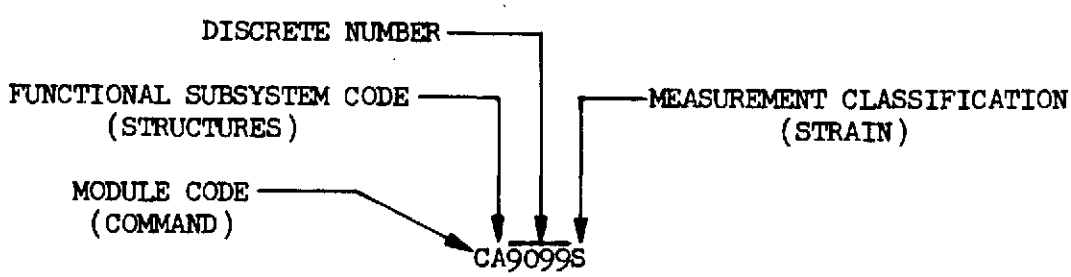
3. REQUIREMENTS

3.1 General Requirements.- The flight and ground checkout measurement requirements for Block II spacecraft shall be as listed in Appendices A, B, C, D, E, and F.

3.2 Measurement Requirements Coding.- The following paragraphs desribe the heading titles and the information contained under each heading for the format presented in Appendices A, B, E, and F.

3.2.1 Measurement Identification (Meas. ID). - The measurement identification consists of seven characters: two letters followed by four numbers and one letter.

The following sketch shows an example of a measurement number.



3.2.1.1 Module Code. - The first letter designates the measurement location by module:

A ADAPTER

B BOOSTER

C COMMAND

L LAUNCH ESCAPE TOWER

Q MSC ENVIRONMENTAL CHAMBER "A" VEHICLE SUPPORT STAND AND LINES

S SERVICE

3.2.1.2 Functional Subsystem Code. - The second letter denotes the subsystem within which the measurement originates.

A STRUCTURES

C ELECTRICAL POWER

D SEQUENTIAL EVENTS CONTROLLER

E EARTH LANDING SEQUENCE CONTROLLER

F ENVIRONMENTAL CONTROL

G GUIDANCE AND NAVIGATION

H STABILIZATION AND CONTROL

J CREW EQUIPMENT

K FLIGHT TECHNOLOGY

L SCIENTIFIC EQUIPMENT

P SERVICE PROPULSION

R REACTION CONTROL

S L/V EMERGENCY DETECTION

T COMMUNICATIONS AND INSTRUMENTATION

3.2.1.3 Discrete Number. - Characters three through six are discrete numbers listed sequentially within each subsystem.

3.2.1.4 Measurement Classification. - The seventh character, a letter, denotes measurement classification or type.

A	ACCELERATION	N	CAMERA
B	PHASE	P	PRESSURE
C	CURRENT	Q	QUANTITY
D	VIBRATION	R	RATE
E	POWER	S	STRAIN
F	FREQUENCY	T	TEMPERATURE
G	FORCE	U	UNDEFINED
H	POSITION/ATTITUDE	V	VOLTAGE
J	BIOMEDICAL	W	TIME
K	RADIATION	X	DISCRETE EVENT
L	VELOCITY	Y	ACOUSTICAL
M	MASS	Z	pH - ACIDITY

3.2.2 Measurement Description.- The heading "MEASUREMENT DESCRIPTION", is a brief definitive title given to each measurement. Standard abbreviations are used, where applicable, to limit maximum length to 33 characters, including spaces. See abbreviation list in Section 6.

3.2.3 Accessibility. - The heading "ACCESSIBILITY" refers to location or mode whereby the measurement is made available to the astronaut or to the data aquisition system.

3.2.3.1 Telemetry/Tape Recorder (TM/TR). - The codes under the subheading "TM/TR" indicate the measurement is either telemetered or tape recorded.

3.2.3.1.1 Pulse Code Modulation (PCM). - Measurements coded "PCM" refer to an analog measurement which will be transmitted by the pulse code modulation telemetry system as an 8 bit serial word.

3.2.3.1.2 Pulse Code Modulation Plus (PCM+). - Measurements coded "PCM+" are required to be transmitted during the minimum data mode (reduced bit rate) operation of the PCM telemetry system. When the telemetry system is in the minimum mode, the bit rate is reduced from 51.2 kilobits per second to 1.6 kilobits per second. Flight critical measurements only are transmitted during the minimum data mode operation under normal conditions.

3.2.3.1.3 Pulse Code Modulation Events (PCME). - Measurements coded as "PCME" are event type functions (off-on, open-close, etc.) and only one-bit of the digital word is utilized to convey the status information.

3.2.3.1.4 Pulse Coded Modulation Digital (PCMD). - Measurements coded "PCMD" are presented to the telemetry as parallel digital words.

3.2.3.1.5 Flight Qualification (FQ) - Measurements coded "FQ" are required to be telemetered or tape recorded to satisfy specific spacecraft mission test objectives and will not be required to be telemetered for operational purposes.

3.2.3.1.6 Tape Recorder (TR). - Measurements coded "TR" are required to be recorded on either the operational or the flight qualification tape recorder.

3.2.3.2 Display (DISP). - The subheading "DISP" used in conjunction with the following codes, indicates the various methods in which the displays shall be presented to the astronaut.

a. "M" Indicates meter.

b. "L" Indicates light.

c. "TB" Indicates talk back (flag annunciator).

d. "S" Indicates selectable (single meter, talkback or light to monitor more than one function).

e. "SM" Indicates selectable meter.

f. "SMB" Indicates selectable meter with talk back.

g. An asterisk (*) appearing with any of the above indicates that function is monitored on the master caution and warning display.

3.2.3.3 Ground Support Equipment (GSE).- The subheading "GSE" used in conjunction with the following codes, indicates the measurements monitored by GSE (NON-ACE) during checkout and also indicates where the measurement is made available.

a. "A" Indicates points in the command module that are physically accessible within the pressurized shell.

b. "T" Indicates electrical or physical (pressure) points in the command and service module which may be used for checkout. These test points are not accessible after close-out in preparation for a mission.

c. "G" Indicates that GSE auxiliary checkout equipment (NON-ACE) shall monitor this measurement.

d. "AG" Indicates that the measurement will be made at an existing access point by GSE auxiliary checkout equipment (G).

e. "TG" Indicates that the measurement will be monitored at an existing test point by GSE auxiliary checkout equipment (G).

f. "USMG" Indicates that GSE auxiliary checkout equipment (G) monitors the measurement at the service module umbilical.

g. "FM" Indicates high frequency measurements which will be monitored by an oscilloscope.

h. "X" Indicates that the measurement will be hardline wired to a data acquisition system.

3.2.4 Data Range.- The heading "DATA RANGE", used in conjunction with the subheadings LOW, HIGH and UNITS, denotes the maximum upper and lower physical parameter limits required to be instrumented to provide adequate data to determine system status and performance. The range noted is for telemetry or a pure display. When a requirement for telemetry and display is indicated, the range for the display may be different and will not be noted. Where ranges are indicated as a multiple type, e.g., 1/10/15 degrees, the measurement range may be changed by mode selection. Special measurements ranges such as + - 9.9 VRMS are measurements that are in-phase or out of phase with the transducer excitation voltage.

a. The subheading "LOW" defines the lower limit of the measurement to be monitored.

b. The subheading "HIGH" defines the upper limit of measurement to be monitored.

c. The subheading "UNITS" denotes the engineering units in which the measurement will be taken, i.e. VDC, DEG F, PSIA, EVENT, ETC. See abbreviation list in Section 6.

3.2.5 Category (C)(A)(T) - The category heading, used in conjunction with the following numbers, identifies the measurement as to function in the flight and checkout of the spacecraft.

a. The number "1" indicates the measurement is required for in-flight management of the spacecraft. Measurements of this type are classified as operational and shall be presented only to the astronaut or to the astronaut and the manned space flight network (MSFN) on a real time basis (on board display and ground display). Measurements of this type will provide essential spacecraft and system status (critical temperatures, pressures and quantities), essential spacecraft performance information (attitude, accelerations, etc.), and vital information essential to crew safety (abort warnings, pH Factor, etc.).

b. The number "2" indicates the measurement is used for mission control and surveillance of in flight system performance. Measurements of this type are classified as operational and are essential for making decisions in the event of a system malfunction. In the case of a system malfunction, the measurements will be used as a basis for spacecraft management from the ground by means of voice or command links. The measurements will be displayed in real-time at MSFN.

c. The number "3" indicates the measurement is required for ground checkout by GSE Auxiliary Equipment (NON-ACE). Measurements of this type are required to ensure proper system operation and flight readiness.

d. The number "4" indicates the measurement is a flight qualification measurement. Measurements of this type may vary from spacecraft to spacecraft and are required for satisfaction of mission test objectives relating to qualification and verification of engineering design and analysis of the spacecraft and its subsystems. The data obtained from measurements of this type will be used for post flight evaluation and analysis only.

e. The number "5" indicates that the measurement is a scientific measurement used to monitor scientific experiments which vary from mission to mission as defined by NASA. The scientific equipment and sensors are to be furnished by NASA.

f. The letter "B" indicates measurements which are telemetered or tape recorded on a specific spacecraft to obtain flight qualification data for satisfaction of mission objectives, but also are monitored by ACE.

3.2.6 Response. - The heading "RESPONSE", used in conjunction with the following subheadings, RATE and UNIT, is the minimum sampling rate required to reproduce data with sufficient freqquency response to satisfy the measurement reqirement.

a. The subheading "RATE" denotes the numerical rate at which the measurement will be sampled by telemetry or the frequency limit which will be recorded by a tape recorder.

b. The subheading "Unit" indicates that the rate parameter is for samples per second (S/S) or the frequency limit in cycles per second (CPS).

3.2.7 Location/Remarks. - The "LOCATION/REMARKS" heading is used to present supplementary information or to denote the physical location within the spacecraft where the measurement is taken. In order to describe spacecraft motion, attitudes, and component locations, reference coordinates are assigned to the three spacecraft axes using the crew positioned in the couches as the frame of reference. The three axes are the longitudinal axis referred to as the X or roll axis, the lateral axis is referred to as the Y or pitch axis and the vertical axis referred to as the Z or yaw axis. Standard sign conventions are followed with forward movement, clockwise roll, movement to the right, and movement toward the astronauts feet being positive. Figure 1 illustrates the coordinates and station numbers used on Apollo vehicles as well as their relative positions to various components. Measurement locations are expressed in both linear and polar coordinates or a combination of the two. All angular dimensions are referenced with the +Y axis as 0 degrees and the +Z axis as 90 degrees. Linear distances are in inches; angles are in degrees. Examples of typical spacecraft measurements at specific locations are indicated on Figure 1.

3.2.8 Spacecraft Effectivity.- The spacecraft "EFFECTIVITY" heading and its subheadings, which list all Block II spacecraft by number, designate which measurements are required on a particular spacecraft. This is accomplished by placing an "X" opposite the measurement number and directly under the applicable spacecraft number. A repeated measurement with a slash (/) in the left hand margin indicates a difference in parameter information.

3.2.9 Flight Operational Measurement Requirements.- Appendix A lists all the flight operational measurements required on Block II spacecraft.

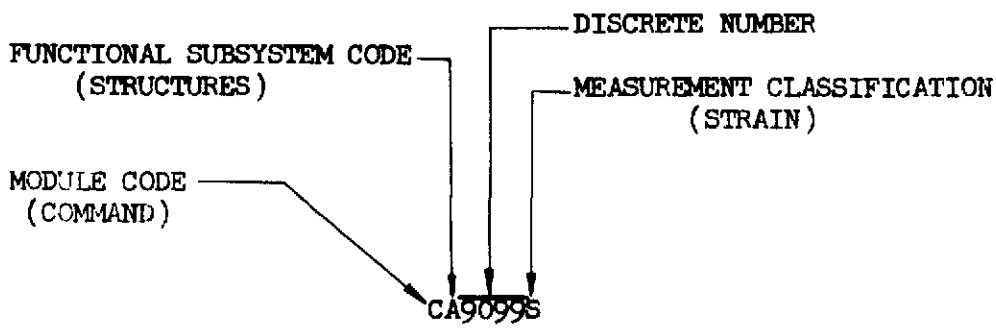
3.2.10 Flight Qualification Measurement Requirement.- Appendix B lists all the flight qualification measurements required on Block II spacecraft.

3.2.11 NON-ACE-S/C Checkout Measurements.- Appendix "E" lists the measurements required for checkout of the spacecraft using NON-ACE-S/C GSE equipment.

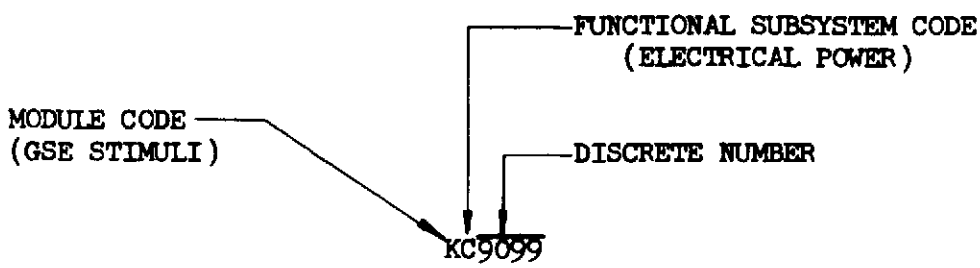
3.3 ACE-S/C Measurements and Stimulus Requirements Coding.- The following paragraphs describe the heading titles and the information contained under each heading for the formats presented in Appendices "C" and "D".

3.3.1 Measurement or Stimulus Identification (Meas I.D. or Stim. I.D.).- The identification consists of six or seven characters; two letters followed by four numbers and (for measurements) one letter.

The following sketch shows an example of an ACE measurement identification number:



The following sketch shows an example of a stimulis identification number:



3.3.1.1 Module Code.- The first letter designates the module wherein the measurement or stimulus originates:

A Adapter
B Booster
C Command
E Environmental Chamber
F GSE Service Equipment
G Ground Support Equipment (GSE)
H TBD
K GSE Stimuli
L Launch Escape Tower
Q MSC Environmental Chamber "A" Vehicle Support Stand and Lines
S Service

3.3.1.2 Functional Subsystem Code.- The second letter denotes the subsystem wherein the measurement originates or the stimulus terminates.

A Structures
C Electrical Power
D Sequential Events Controller
E Earth Landing Sequence Controller
F Environmental Control
G Guidance and Navigation
H Stabilization and Control
J Crew Equipment
K Flight Technology
L Scientific Equipment
P Service Propulsion
R Reaction Control
S L/V Emergency Detection
T Communications and Instrumentation
V Ground Support Equipment

3.3.1.3 Discrete Number.- Characters three through six are discrete numbers listed sequentially within each subsystem.

3.3.1.4 Measurement Classification.- The seventh character, a letter, denotes measurement classification or type (measurements only):

A	Accleration	J	Biomedical	S	Strain
B	Phase	K	Radiation	T	Temperature
C	Current	L	Velocity	U	Undefined
D	Vibration	M	Mass	V	Voltage
E	Power	N	Camera	W	Time
F	Frequency	P	Pressure	X	Discrete Event
G	Force	Q	Quantity	Y	Accoustical
H	Position/Attitude	R	Rate	Z	ph - Acidity

3.3.2 Measurement Description.- The heading "Measurement Description" is a brief definitive title given to each measurement. Standard abbreviations are used, where applicable, to limit maximum length to 32 characters, including spaces. See abbreviation list in Section 6.

3.3.3 Data Range (Measurements).- The heading "Data Range" used with the subheadings Low, High and Units, denotes the maximum upper and lower physical parameter limits required to provide adequate data to determine system status and performance.

a. The subheading "Low" defines the lower limit of the measurement to be monitored.

b. The subheading "High" defines the upper limit of the measurement to be monitored.

c. The subheading "Units" denotes the engineering units in which the measurement will be taken i.e. VDC, Deg F, PSIA, Event, etc. See abbreviation list in Section 6.

d. "MA" indicates that there is no applicable data range.

3.3.4 Electrical Signal Range (Uplink).- The heading "Electrical Signal Range", used in conjunction with subheadings Low, High and Units, denotes the maximum Upper and Lower limits of the stimulus.

a. The subheading "Low" defines the lower limit of the Stimulus.

b. The subheading "High" defines the upper limit of the Stimulus.

c. The subheading "Unit" denotes the engineering units of the Stimulus i.e. VDC, etc.

3.3.5 Response Rate (Resp Rate).- The heading "Resp Rate" is the minimum sampling rate in samples per second required to reproduce data with sufficient frequency response to satisfy the measurement requirement.

3.3.6 Site Effectivity.- The "Site Effectivity" subheadings, which lists all required sites, designates which measurements are required to be monitored at a particular site. This is accomplished by placing an "X" opposite the measurement number and directly under the applicable site. A (-) indicates the measurement is not required at that particular site. The site effectivity is only valid for the corresponding spacecraft effectivity.

a. The "MSC" subheading denotes the Manned Space Center at Clear Lake, Texas.

b. The "DNY" subheading denotes Bldg. 290 in Downey, Calif.

c. The "P34" subheading denotes Launch Pad 34 at the Kennedy Space Center in Florida.

d. The "ML" subheading denotes the Mobile Launcher at Complex 39, Kennedy Space Center, Florida.

e. The "MSS" subheading denotes the Mobile Service Structure at Launch Complex 39, Kennedy Space Center, Florida.

f. The "MSO" subheading denotes the Manned Spacecraft Operations Building at Kennedy Space Center in Florida.

g. The "SFA" subheading denotes the Static Firing Area at Kennedy Space Center in Florida.

h. The "CO" subheading denotes that the measurement or stimuli is associated with the ACE "Carry On" equipment. This equipment travels with the spacecraft and has no set site effectivity.

3.3.7 Intentional Blank.

3.3.8 ACE-S/C Measurement Requirements.- Appendix "C" lists all the ACE-S/C measurements required for Block II Spacecraft along with the site effectivity.

3.3.9 ACE-S/C Stimulus Requirements.- Appendix "D" lists all the ACE-S/C stimulus requirements for Block II Spacecraft along with the site effectivity.

3.4 Alternate Mission Requirements. - Appendix "F" covers these requirements for the ground system required to support spacecraft that differ from the requirements specified in Section 3 of this specification.

4.0 QUALITY ASSURANCE - Not Applicable.

5.0 PREPARATION FOR DELIVERY - Not Applicable.

6.0 NOTES

6.1 Definitions.-

6.1.1 Measurement List Abbreviations.-

A REQ	ABORT REQUEST
ABS	ABSOLUTE
AC	ALTERNATING CURRENT
ACCEL	ACCELEROMETER
ACCUM	ACCUMULATOR
ACE-S/C	ACCEPTANCE CHECKOUT EQUIPMENT FOR SPACECRAFT
ACT	ACTUATION
ACTR	ACTUATOR
ADAPT	ADAPTER
ADJ	ADJACENT
AGAP	ATTITUDE GYRO ACCELEROMETER PACKAGE
AGC	AUTOMATIC GAIN CONTROL
AGC	APOLLO GUIDANCE COMPUTER
AGCS	AUTOMATIC GROUND CONTROL STATION
AMP	AMPLIFIER
ANT	ANTENNA
ASSY	ASSEMBLY
ASTRO	ASTRONAUT
ATMOS	ATMOSPHERE
ATT	ATTITUDE
ATTEN	ATTENUATOR
ATT/RT	ATTITUDE RATE
ATTSTRUT	ATTENUATION STRUT
AUTO	AUTOMATIC
AUX	AUXILIARY
AUXD	AUXILIARY DISPLAY UNIT
B1 AT L/O	BINARY 1 AT LIFT OFF
BARO	BAROMETRIC
BATT	BATTERY
BCD	BINARY CODED DECIMAL
BET	BETWEEN
BF2M	BTU PER SQUARE FOOT PER MINUTE
BHD	BULKHEAD
BL	BONDLINE
BLD	BLEED
BM	BEAM
BMAG	BODY MOUNTED ATTITUDE GYRO
BPF	BAND PASS FILTER
BRK	BRACKET
BULKHD	BULKHEAD

CAB	CABINET
CB	CIRCUIT BREAKER
CCW	COUNTERCLOCKWISE
CDU	COUPLING DISPLAY UNIT
CGSS	CRYOGENIC STORAGE SYSTEM
CHANN	CHANNEL
CIRC	CIRCULATE
CIRC	CIRCUMFERENCE, CIRCUMFERENTIAL
CK	CHECK
CKT	CIRCUIT
CL	CLOSE
CM	COMMAND MODULE
CMC	COMMAND MODULE GUIDANCE COMPUTER
CMD	COMMAND
CNTR	CENTER
C/O	CHECKOUT
COMB	COMBINED
COMP	COMPRESSION
COMP	COMPLETE
COMPT	COMPARTMENT
COND	CONDENSER
COND	CONDITIONING
COND	CONDITIONER
COS	COSINE
CONT	CONTROL
CONV	CONVERTER
CO2	CARBON DIOXIDE
CPS	CYCLES PER SECOND
CR	CREW
CRIT	CRITICAL
CSM	COMMAND SERVICE MODULE
CTE	CENTRAL TIMING EQUIPMENT
CTR	CENTER
CUR	CURRENT
CW	CLOCKWISE
C/W	CAUTION AND WARNING
CYC	CYCLE
D	DEGREES
DAC	DIGITAL TO ANALOG CONVERTER
DC	DIRECT CURRENT
DCV	DIRECT CURRENT VOLTAGE
DECR	DECREASE
DEG	DEGREE
DEMOD	DEMODULATOR
DEPL	DEPLOY
DET	DETECTOR
DIFF	DIFFERENTIAL
DISP	DISPLAY OR DISPLACEMENT
DISCON	DISCONNECT

DISPSL	DISPOSAL
DOCK	DOCKING
DR	DRIVE
DRG	DROGUE
DSC	DISCHARGE
DSC	DISCONNECT
DSE	DATA STORAGE EQUIPMENT
DSKY	DISPLAY AND KEYBOARD
DTCS	DIGITAL TEST COMMAND SYSTEM
DV	DELTA VELOCITY
ECA	ELECTRONIC CONTROL ASSEMBLY
ECS	ENVIRONMENTAL CONTROL SYSTEM
EDS	EMERGENCY DETECTION SYSTEM
EKG	ELECTRO-CARDIOGRAM
ELECT	ELECTRONIC
ELS	EARTH LANDING SYSTEM
EMER	EMERGENCY
EMS	ENTRY MONITOR SYSTEM
ENCL	ENCLOSURE
ENG	ENGINE
EQUIP	EQUIPMENT
ERR	ERROR
EVAC	EVACUATE
EVAP	EVAPORATOR
EX	EXCHANGER
EXCHR	EXCHANGER
EXP	EXPLOSIVE
EXT	EXTERNAL
FAC	FACILITY
FBK	FEEDBACK
FC	FUEL CELL
FCSM	FLIGHT COMBUSTION STABILITY MONITOR
FDAI	FLIGHT DIRECTOR ATTITUDE INDICATOR
FDBK	FEEDBACK
FDS	FLUID DISTRIBUTION SYSTEM
FL	FILTER
FR	FRAME
FREQ	FREQUENCY
FTG	FITTING
FUNC	FUNCTION
FWD	FORWARD

G	GRAVITATIONAL UNIT OF FORCE
GDC	GYRO DISPLAY COUPLER
GHE	GASEOUS HELIUM
GH2	GASEOUS HYDROGEN
GIMB	GIMBAL
GLY	GLYCOL
GMT	GREENWICH MEAN TIME
G-N	GUIDANCE AND NAVIGATION
GND	GROUND
GN2	GASEOUS NITROGEN
GO_2	GASEOUS OXYGEN
GPI	GIMBAL POSITION INDICATOR
GSE	GROUND SERVICING EQUIPMENT
G-V	GRAVITY-VELOCITY
HE	HELIUM
HEL	HELIUM
HF	HIGH FREQUENCY
HI	HIGH
HNYCMB	HONEYCOMB
HORIZ	HORIZONTAL
HRDLN	HARDLINE
HRS	HOURS
HRZ	HORIZONTAL
HS	HEAT SHIELD
HSG	HOUSING
HT	HEAT
HTR	HEATER
HUND	HUNDREDS
HX	HEAT EXCHANGER
HZ	CYCLES PER SECOND
H2	HYDROGEN
H2O	WATER
ID	IDENTIFICATION
IG	INNER GIMBAL
IGA	INNER GIMBAL ANGLE
IH2O	INCHES OF WATER COLUMN
IMU	INTERNAL MEASUREMENT UNIT
IN	INLET
IN	INNER
IN	INPUT
INCR	INCREASE
IND	INDICATOR
INIT	INITIATE
INJ	INJECTOR
INSUL	INSULATION
INT	INTERNAL

INTEGR	INTEGRATED
I/P	IN PROGRESS
IR	INFRARED
IRIG	INERTIAL RATE INTEGRATION GYROSCOPE
ISO	ISOLATION
ISS	INERTIAL SUB SYSTEM
ISU	INITIATOR SUBSTITUTE UNIT
IU	INSTRUMENTATION UNIT
IUTM	INSTRUMENTATION UNIT (L/V) TELEMETRY
JETT	JETTISON
KC	KILOCYCLES
LDEC	LUNAR DOCKING EVENT CONTROLLER
LEB	LOWER EQUIPMENT BAY
LEM	LUNAR EXCURSION MODULE
LES	LAUNCH ESCAPE SYSTEM
LET	LAUNCH ESCAPE TOWER
LGC	LEM GUIDANCE COMPUTER
LH	LEFT HAND
LH2	LIQUID HYDROGEN
LI	LITHIUM
LK	LINK
LMT	LIMIT
LN2	LIQUID NITROGEN
LO	LOW
LOC	LOCATION
LONG	LONGITUDINAL
LO2	LIQUID OXYGEN
LSB	LEAST SIGNIFICANT BIT
LSSC	LEM SLA SEQUENCE CONTROLLER
LUT	LAUNCH UMBILICAL TOWER
LV	ELECTRICAL OPERATED VALVE
LV	LOADING VALVE
L/V	LAUNCH VEHICLE
MAN	MANUAL
MANIF	MANIFOLD
MAX	MAXIMUM
MC	MEGACYCLES
MECH	MECHANICAL
MESC	MASTER EVENT SEQUENCER CONTROLLER
MG	MIDDLE GIMBAL
MGA	MIDDLE GIMBAL ANGLE
MIN	MINIMUM
MIN	MINUTES

ML	MOBILE LAUNCHER
MOD	MODULATED
MON	MONITOR
MPX	MULTIPLEXER
MS	MILLISECONDS
MSB	MOST SIGNIFICANT BIT
MSS	MOBILE SERVICE STRUCTURE
MTR	MOTOR
NA	NO APPLICABLE DATA RANGE
NAV	NAVIGATION
NEG	NEGATIVE
NO	NUMBER
NO AA	NO AUTO ABORT
NORM	NORMAL
NRZ	NON-RETURN-TO-ZERO
N2	NITROGEN
O/V	OVER VOLTAGE
OG	OUTER GIMBAL
OGA	OUTER GIMBAL ANGLE
OL	OVERLOAD
OP	OPEN
OPP	OPPOSITE
OPTX	OPTICS
OTV	OUT OF TOLERANCE VOLTAGE
OUT	OUTER
OUT	OUTPUT
OUTDB	OUTBOARD
OVRT	OVER TEMPERATURE
OX	OXIDIZER
OXID	OXIDIZER
O2	OXYGEN
P	PERCENT
P	PITCH
PA	POWER AMPLIFIER
P/A	POWER AMPLIFIER
PCM	PULSE CODE MODULATION
PCNT	PERCENT
PCT	PERCENT
PGE	PURGE
PGNS	PRIMARY GUIDANCE NAVIGATION SYSTEM
PH	HYDROGEN ION CONCENTRATION
PH	PHASE
PHOTOMUL	PHOTOMULTIPLIER

PHYS	PHYSICAL
PIPA	PULSED INTEGRATING PENDULOUS ACCELEROMETER
PISU	PYROTECHNICS INITIATORS SUBSTITUTE UNIT
PIU	PYROTECHNICS INITIATOR UNIT
PKS	PEAKS
PL	PLATE
PLSS	PORTABLE LIFE SUPPORT SYSTEM
PMP	PREMODULATION PROCESSOR
PNL	PANEL
POS	POSITION
POS	POSITIVE
POT	POTENTIOMETER
PRESS	PRESSURE
PRI	PRIMARY
PRIM	PRIMARY
PROG	PROGRAM
PROG	PROGRESS
PROP	PROPELLANT
PS	POWER SUPPLY
PSA	POWER SERVO ASSEMBLY
PT	POINT
PT	PRESSURE TRANSDUCER
PU	PROPELLANT UTILIZATION
PUGS	PROPELLANT UTILIZATION GAGING SYSTEM
PV	PNEUMATIC OPERATED VALVE
PVR	PRECISION VOLTAGE REFERENCE
PWR	POWER
PYRO	PYROTECHNIC
QUAD	QUADRANT
QUAD	QUADRATURE
QUAL	QUALIFICATION
QUAN	QUANTITY
RAD	RADIATOR
RCS	REACTION CONTROL SYSTEM
RCVR	RECEIVER
REC	RECOVERY
REC	RECEIVER
REDUN	REDUNDANT
REDUND	REDUNDANT
REDUNT	REDUNDANT
REF	REFERENCE
REFRIG	REFRIGERATION
REG	REGULATED
REG	REGISTER
REL	RELEASE
REL	RELIEF

REND	RENDEZVOUS
RES	RESOLVER
RF	RADIO FREQUENCY
RH	RIGHT HAND
RJ	REACTION JET
RLY	RELAY
RMS	ROOT MEAN SQUARE
RNWAY	RUNAWAY
ROT	ROTATION
RRT	RENDEZVOUS RADAR TRANSPONDER
RR/T	RENDEZVOUS RADAR TRANSPONDER
RT	RATE
RU	REFRIGERATION UNIT
RUPT	RUPTURE
RZ	RETURN TO ZERO
SC	SPACECRAFT
SCO	SUBCARRIER OSCILLATOR
SCS	STABILIZATION CONTROL SYSTEM
SCT	SCANNING TELESCOPE
SEC	SECONDARY
SEC	SECONDS
SECT	SECTOR
SEL	SELECTOR
SEP	SEPARATION
SEQ	SEQUENCE
SEXT	SEXTANT
SG	SIGNAL GENERATOR
SHL	SHELL
SHLD	SHIELD
SIG	SIGNAL
S-II	SATURN II
SIM	SIMULATED
SIN	SINE
S-IVB	SATURN IV B
SLA	SPACECRAFT LEM ADAPTER
SM	SERVICE MODULE
SMJC	SERVICE MODULE JETTISON CONTROLLER
SOL	SOLENOID
SOV	SOLENOID OPERATED VALVE
SPS	SERVICE PROPULSION SYSTEM
STAB	STABILIZATION
STD	STANDARD
STCR	STRINGER
STL	STEEL
STND	STANDARD

STOR	STORAGE
STRUCT	STRUCTURE
STU	SPECIAL TEST UNIT
SU	SERVICE UNIT
SUP	SUPPLY
SURF	SURFACE
SV	SATURN V
SW	SWITCH
SXT	SEXTANT
SYNC	SYNCHRONIZATION
SYS	SYSTEM
TACH	TACHOMETER
TANG	TANGENTIAL
TBD	TO BE DETERMINED
TC	TRANSFER CONTROL
TD	TIME DELAY
TEL	TELESCOPE
TEMP	TEMPERATURE
TENS	TENSION
THOUS	THOUSANDS
THRU	THROUGH
TLM	TELEMETRY
TM	TELEMETRY
TNK	TANK
TORQ	TORQUE
TRANS	TRANSLATION
TRANS	TRANSIENT
TRANSF	TRANSFER
TRUN	TRUNNION
TT	TEMPERATURE TRANSUDCER
TV	TELEVISION
TVC	THRUST VECTOR CONTROL
TWR	TOWER
UB	NASA TERMINAL DISTRIBUTION UMBILICAL TOWER 210 FT LEVEL
UDL	UP DATA LINK
UMB	UMBILICAL
UMBIL	UMBILICAL
UNBAL	UNBALANCE
UNREG	UNREGULATED
UP	UPPER
UV	UNDER VOLTAGE

V	VOLTS
VAC	VACUUM
VAL	VALVE
VDC	VOLTS DIRECT CURRENT
VEH	VEHICLE
VEL	VELOCITY
VERT	VERTICAL
VHF/AM	VERY HIGH FREQUENCY AMPLITUDE MODULATION
VIB	VIBRATION
VLV	VALVE
VLVS	VALVES
VNT	VENT
VRMS	VOLTS ROOT MEAN SQUARE
VP-P	VOLTS PEAK-TO-PEAK
VT	VACUUM TRANSDUCER
W-G	WATER GLYCOL
WND	WINDOW
XDUCER	TRANSDUCER
XFER	TRANSFER
XFRED	TRANSFERRED
XMTR	TRANSMITTER
XPONDER	TRANSPONDER
Y	YAW
1/2X	ONE HALF TIMES
1X	ONE TIME
2X	TWO TIMES
16X	SIXTEEN TIMES

ENGINEERING UNITS

AMP	AMPERES
ARMS	AMPERES ROOT MEAN SQUARE
ADC	AMPERES DIRECT CURRENT
B/F/S	BTU PER SQUARE FOOT PER SECOND
BTU	BRITISH THERMAL UNIT
BTU/FT2/MIN	BTU PER SQUARE FOOT PER MINUTE
CPS	CYCLE PER SECOND
C/S	COUNTS PER SECOND
DEG	DEGREES
DEG F	DEGREES FAHRENHEIT
FT	FEET
FPS	FRAMES PER SECOND
G	GRAVITATIONAL UNIT OF FORCE
GPM	GALLONS PER MINUTE
HRS	HOURS
IN	INCH
IH2O	INCHES OF WATER COLUMN
K	THOUSAND
LBS	POUNDS
LB/HR	POUNDS PER HOUR
MIN	MINUTES
MM	MILLIMETERS
MMHG	MILLIMETER OF MERCURY
MV	MILLIVOLTS
MVDC	MILLIVOLTS DIRECT CURRENT
PCNT	PERCENT
PF	POWER FACTOR
PH	HYDROGEN ION CONCENTRATION
PPS	PULSES PER SEC
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
RAD/HR	ROENTGEN ABSORBED DOSE PER HOUR
SEC	SECONDS
S/S	SAMPLES PER SECOND
UI/IN	MICRO INCH PER INCH

VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
VRMS	VOLTS ROOT MEAN SQUARE

To be added

Figure 1. CSM Coordinates System

SECTION 10.0 APPENDICES

APPENDIX A

FLIGHT OPERATIONAL MEASUREMENT REQUIREMENTS

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
STRUCTURES

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C A1800	T TEMP SIDE HS BOND LOC 1	PCM				-260	+600	DEG F	2	1	S/S	XXXX
C A1803	T TEMP SIDE HS BOND LOC 4	PCM				-260	+600	DEG F	2	1	S/S	XXXX
C A1806	T TEMP SIDE HS BOND LOC 7	PCM				-260	+600	DEG F	2	1	S/S	XXXX
C A1809	T TEMP SIDE HS BOND LOC 10	PCM				-260	+600	DEG F	2	1	S/S	XXXX
C A1820	T TEMP CREW HS ABLATOR SURF LCC 1A	PCM				-260	+600	DEG F	2	1	S/S	XXXXXXX
C A1821	T TEMP CREW HS ABLATOR SURF LCC 4A	PCM				-260	+600	DEG F	2	1	S/S	XXXXXXX
C A1822	T TEMP CREW HS ABLATOR SURF LCC 7A	PCM				-260	+600	DEG F	2	1	S/S	XXXXXXX
C A1823	T TEMP CREW HS ABLATOR SURF LCC 10A	PCM				-260	+600	DEG F	2	1	S/S	XXXXXXX
S A1830	T TEMP SM SKIN SURF LOC 1A	PCM				-109	+264	DEG F	2	1	S/S	XXXXX
S A1831	T TEMP SM SKIN SURF LOC 4A	PCM				-109	+264	DEG F	2	1	S/S	XXXXX
S A1832	T TEMP SM SKIN SURF LOC 7A	PCM				-109	+264	DEG F	2	1	S/S	XXXXX
S A1833	T TEMP SM SKIN SURF LOC 10A	PCM				-109	+264	DEG F	2	1	S/S	XXXXX
S A2377	T TEMP BAY 2 OX TANK SURFACE	PCM				-100	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S A2378	T TEMP BAY 3 OX TANK SURFACE	PCM				-100	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S A2379	T TEMP BAY 5 FUEL TANK SURFACE	PCM				-100	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S A2380	T TEMP BAY 6 FUEL TANK SURFACE	PCM				-100	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S A2400	T OX TRANSF LINE ENTRY SUMP TAK	PCM				-100	+200	DEG F	2	1	S/S	XX XXX
S A2401	T FUEL TRANSF LINE ENTRY SUMP TAK	PCM				-100	+200	DEG F	2	1	S/S	XX XXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S C0030 Q	QUANTITY H2 TANK 1	PCM+	M			+0	+100	PCNT	1	1	S/S	XXXXXXXXXX
S C0031 Q	QUANTITY H2 TANK 2	PCM+	M			+0	+100	PCNT	1	1	S/S	XXXXXXXXXX
S C0032 Q	QUANTITY O2 TANK 1	PCM+	M			+0	+100	PCNT	1	1	S/S	XXXXXXXXXXX
S C0033 Q	QUANTITY O2 TANK 2	PCM+	M			+0	+100	PCNT	1	1	S/S	XXXXXXXXXXX
S C0037 P	PRESS O2 TANK 1	PCM+	SM *			+50	+1050	PSIA	1	1	S/S	XXXXXXXXXXX
S C0038 P	PRESS O2 TANK 2	PCM+	M *			+50	+1050	PSIA	1	1	S/S	XXXXXXXXXXX
S C0039 P	PRESS H2 TANK 1	PCM+	M *			+0	+350	PSIA	1	1	S/S	XXXXXXXXXX
S C0040 P	PRESS H2 TANK 2	PCM+	M *			+0	+350	PSIA	1	1	S/S	XXXXXXXXXX
S C0041 T	TEMP O2 TANK 1	PCM+				-325	+80	DEG F	2	1	S/S	XXXXXXXXXXX
S C0042 T	TEMP O2 TANK 2	PCM+				-325	+80	DEG F	2	1	S/S	XXXXXXXXXXX
S C0043 T	TEMP H2 TANK 1	PCM+				-425	-200	DEG F	2	1	S/S	XXXXXXXXXX
S C0044 T	TEMP H2 TANK 2	PCM+				-425	-200	DEG F	2	1	S/S	XXXXXXXXXX
C C0175 X	TEMP STATIC INVERTER 1		L *				OVRT	EVENT	1			X
/C C0175 T	TEMP STATIC INVERTER 1	PCM	L *			+32	+248	DEG F	1	1	S/S	X XXXXXXXXX
C C0176 X	TEMP STATIC INVERTER 2		L *				OVRT	EVENT	1			X
/C C0176 T	TEMP STATIC INVERTER 2	PCM	L *			+32	+248	DEG F	1	1	S/S	X XXXXXXXXX
C C0177 X	TEMP STATIC INVERTER 3		L *				OVRT	EVENT	1			X
/C C0177 T	TEMP STATIC INVERTER 3	PCM	L *			+32	+248	DEG F	1	1	S/S	X XXXXXXXXX
C C0188 P	PRESS BATT COMPARTMENT (MANIF)		SM	A		+0	+20	PSIA	1			XXXXXXXXXXX
C C0200 V	AC VOLTAGE MAIN BUS 1 PHASE A	PCM+	SM			+0	+150	VAC	1	10	S/S	XXXXXXXXXXX
C C0201 V	AC VOLTAGE MAIN BUS 1 PHASE B		SM			+90	+130	VAC	1			XXXXXXXXXXX
C C0202 V	AC VOLTAGE MAIN BUS 1 PHASE C		SM			+90	+130	VAC	1			XXXXXXXXXXX
C C0203 V	AC VOLTAGE MAIN BUS 2 PHASE A	PCM+	SM			+0	+150	VAC	1	10	S/S	XXXXXXXXXXX
C C0204 V	AC VOLTAGE MAIN BUS 2 PHASE B		SM			+90	+130	VAC	1			XXXXXXXXXXX
C C0205 V	AC VOLTAGE MAIN BUS 2 PHASE C		SM			+90	+130	VAC	1			XXXXXXXXXXX
C C0206 V	DC VOLTAGE MAIN BUS A	PCM+	SM			+0	+45	VDC	1	10	S/S	XXXXXXXXXXX
C C0207 V	DC VOLTAGE MAIN BUS B	PCM+	SM			+0	+45	VDC	1	10	S/S	XXXXXXXXXXX
C C0210 V	DC VOLTAGE BATTERY BUS A	PCM	SM			+0	+45	VDC	1	10	S/S	XXX
/C C0210 V	DC VOLTAGE BATTERY BUS A	PCM+	SM			+0	+45	VDC	1	10	S/S	XXXXXXXX
C C0211 V	DC VOLTAGE BATTERY BUS B	PCM	SM			+0	+45	VDC	1	10	S/S	XXX
/C C0211 V	DC VOLTAGE BATTERY BUS B	PCM+	SM			+0	+45	VDC	1	10	S/S	XXXXXXXX
C C0212 V	DC VOLTAGE BATTERY C		SM			+20	+45	VDC	1			XXXXXXXXXXX
C C0214 V	DC VOLTAGE BATT CHARGER OUT		SM			+20	+45	VDC	1			XXXXXXXXXXX
C C0215 C	DC CURRENT BATT CHARGER OUT	PCM+	SM			+0	+5	AMP	1	10	S/S	XXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M OPER

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
C C0222 C DC	CURRENT BATTERY A	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXXXXX
C C0223 C DC	CURRENT BATTERY B	PCM	SM			+0	+100	AMP	1	10	S/S	XXX
/C C0223 C DC	CURRENT BATTERY B	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXX
C C0224 C DC	CURRENT BATTERY C	PCM	SM			+0	+100	AMP	1	10	S/S	XXX
/C C0224 C DC	CURRENT BATTERY C	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXX
C C0227 V DC	VOLTAGE PYRO BATT A		SM			+20	+45	VDC	1			XXXXXXXXXXX
C C0228 V DC	VOLTAGE PYRO BATT B		SM			+20	+45	VDC	1			XXXXXXXXXXX
C C0232 V DC	VOLTAGE BATTERY RELAY BUS	PCM+	SM A			+0	+45	VDC	1	10	S/S	XXXXXXXXXXX
C C0233 X DC	UNDER-VOLTAGE IND BUS A		L *			NORM	UV	EVENT	1			XXXXXXXXXXX
C C0234 X DC	UNDER-VOLTAGE IND BUS B		L *			NORM	UV	EVENT	1			XXXXXXXXXXX
C C0236 X AC	UNDER-OVER-VOLTAGE BUS 1		L *			NORM	OTV	EVENT	1			XXXXXXXXXXX
C C0237 X AC	UNDER-OVER-VOLTAGE BUS 2		L *			NORM	OTV	EVENT	1			XXXXXXXXXXX
C C0242 X	OVERLOAD CURRENT AC BUS 1		L *			NORM	OL	EVENT	1			XXXXXXXXXXX
C C0243 X	OVERLOAD CURRENT AC BUS 2		L *			NORM	OL	EVENT	1			XXXXXXXXXXX
S C2000 X FC	RADIATOR BYPASS VALVE 1		TB			NORM	BYPAS	EVENT	1			XXXXXXXXXXX
S C2001 X FC	RADIATOR BYPASS VALVE 2		TB			NORM	BYPAS	EVENT	1			XXXXXXXXXXX
S C2002 X FC	RADIATOR BYPASS VALVE 3		TB			NORM	BYPAS	EVENT	1			XXXXXXXXXXX
S C2060 P N2	PRESSURE FC 1 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2060 P N2	PRESSURE FC 1 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2061 P N2	PRESSURE FC 2 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2061 P N2	PRESSURE FC 2 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2062 P N2	PRESSURE FC 3 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2062 P N2	PRESSURE FC 3 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2066 P O2	PRESSURE FC 1 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2066 P O2	PRESSURE FC 1 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2067 P O2	PRESSURE FC 2 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2067 P O2	PRESSURE FC 2 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2068 P O2	PRESSURE FC 3 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2068 P O2	PRESSURE FC 3 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2069 P H2	PRESSURE FC 1 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2069 P H2	PRESSURE FC 1 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2070 P H2	PRESSURE FC 2 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX
/S C2070 P H2	PRESSURE FC 2 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2071 P H2	PRESSURE FC 3 REGULATED	PCM	SM A			+0	+75	PSIA	1	10	S/S	XXXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S2111111111+S T0000000111 U 7V1346789012 B
/S C2071	P H2 PRESSURE FC 3 REGULATED	PCM	SMB*A			+0	+75	PSIA	1	10	S/S	X
S C2081	T TEMP FC 1 COND EXHAUST	PCM+	SM *			+150	+250	DEG F	1	1	S/S	XXXXXXXXXXX
S C2082	T TEMP FC 2 COND EXHAUST	PCM+	SM *			+150	+250	DEG F	1	1	S/S	XXXXXXXXXXX
/S C2083	T TEMP FC 3 COND EXHAUST	PCM+	SM *			+150	+250	DEG F	1	1	S/S	XXXXXXXXXXX
S C2084	T TEMP FC 1 SKIN	PCM+	SM *			+80	+550	DEG F	1	1	S/S	XXXXXXXXXXX
S C2085	T TEMP FC 2 SKIN	PCM+	SM *			+80	+550	DEG F	1	1	S/S	XXXXXXXXXXX
S C2086	T TEMP FC 3 SKIN	PCM+	SM *			+80	+550	DEG F	1	1	S/S	XXXXXXXXXXX
S C2087	T TEMP FC 1 RADIATOR OUTLET	PCM+	SMB*A			-50	+300	DEG F	1	1	S/S	XXXXXXXXXX
/S C2087	T TEMP FC 1 RADIATOR OUTLET	PCM+	SMB*A			-50	+300	DEG F	1	10	S/S	X
S C2088	T TEMP FC 2 RADIATOR OUTLET	PCM+	SMB*A			-50	+300	DEG F	1	1	S/S	XXXXXXXXXXX
S C2089	T TEMP FC 3 RADIATOR OUTLET	PCM+	SMB*A			-50	+300	DEG F	1	1	S/S	XXXXXXXXXXX
S C2090	T TEMP F/C 1 RADIATOR INLET	PCM				-50	+300	DEG F	2	1	S/S	XXXXXXXXXXX
S C2091	T TEMP F/C 2 RADIATOR INLET	PCM				-50	+300	DEG F	2	1	S/S	XXXXXXXXXXX
S C2092	T TEMP F/C 3 RADIATOR INLET	PCM				-50	+300	DEG F	2	1	S/S	XXXXXXXXXXX
S C2113	C DC CURRENT FC 1 OUTPUT	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXXXXX
S C2114	C DC CURRENT FC 2 OUTPUT	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXXXXX
S C2115	C DC CURRENT FC 3 OUTPUT	PCM+	SM			+0	+100	AMP	1	10	S/S	XXXXXXXXXXX
S C2120	X FUEL CELL 1 BUS A DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2121	X FUEL CELL 2 BUS A DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2122	X FUEL CELL 3 BUS A DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2125	X FUEL CELL 1 BUS B DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2126	X FUEL CELL 2 BUS B DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2127	X FUEL CELL 3 BUS B DISCONNECT		TB*			CONN	DISC	EVENT	1			XXXXXXXXXXX
S C2139	R FLOW RATE H2 FC 1	PCM	SM *			+0	+0.2	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2140	R FLOW RATE H2 FC 2	PCM	SM *			+0	+0.2	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2141	R FLOW RATE H2 FC 3	PCM	SM *			+0	+0.2	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2142	R FLOW RATE O2 FC 1	PCM	SM *			+0	+1.6	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2143	R FLOW RATE O2 FC 2	PCM	SM *			+0	+1.6	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2144	R FLOW RATE O2 FC 3	PCM	SM *			+0	+1.6	LB/HR	1	10	S/S	XXXXXXXXXXX
S C2160	X PH FACTOR WATER CONDITION FC 1	PCME	STB*			NORM	HIGH	EVENT	1	10	S/S	XXXXXXXXXXX
S C2161	X PH FACTOR WATER CONDITION FC 2	PCME	STB*			NORM	HIGH	EVENT	1	10	S/S	XXXXXXXXXXX

OPER

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S C2162 X	PH FACTOR WATER CONDITION FC 3	PCME	STB*			NORM	HIGH	EVENT	1	10	S/S	XXXXXXXXXXX
S C2323 X	FUEL CELL 1 SHUT OFF MON		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXXX
S C2324 X	FUEL CELL 2 SHUT OFF MON		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXXX
S C2325 X	FUEL CELL 3 SHUT OFF MON		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXXX
C C2962 C	CSM TO LM CURRENT MONITOR		SM	A		+0	+10	AMPS	1			X X
/C C2962 C	CSM TO LM CURRENT MONITOR	PCM+	SM	A		+0	+10	AMPS	1	10	S/S	XXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
MASTER EVENTS SEQUENCE CONTROLLER

MEAS. ID		MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	C A L	DATA RANGE LOW	HIGH	UNITS	C A T	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S TC000000111 U 7V1346789012 B
C D0005	V	DC VOLTAGE PYRO BUS A	PCM				+0	+40	VDC	2	10	S/S	XXXXXXXXXXX
C D0006	V	DC VOLTAGE PYRO BUS B	PCM				+0	+40	VDC	2	10	S/S	XXXXXXXXXXX
C D0023	X	CM-SM SEPARATION RELAY CLOSE A	PCME					SEP	EVENT	2	10	S/S	XXXXXXXXXXX
C D0024	X	CM-SM SEPARATION RELAY CLOSE B	PCME					SEP	EVENT	2	10	S/S	XXXXXXXXXXX
C D0123	X	SLA SEPARATION RELAY A	PCME					SEP	EVENT	2	10	S/S	XXXXXXXXXXX
C D0124	X	SLA SEPARATION RELAY B	PCME					SEP	EVENT	2	10	S/S	XXXXXXXXXXX
C D0130	X	HAND CONTROLLER INPUT A	PCME					ABORT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0131	X	HAND CONTROLLER INPUT B	PCME					ABORT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0132	X	EDS ABORT LOGIC INPUT NO 1	PCME				VOTE		EVENT	2	10	S/S	XXXXXXXXXXX
C D0133	X	EDS ABORT LOGIC INPUT NO 2	PCME				VOTE		EVENT	2	10	S/S	XXXXXXXXXXX
C D0134	X	EDS ABORT LOGIC INPUT NO 3	PCME				VOTE		EVENT	2	10	S/S	XXXXXXXXXXX
C D0135	X	EDS ABORT LOGIC OUTPUT A	PCME					ABORT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0136	X	EDS ABORT LOGIC OUTPUT B	PCME					ABORT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0170	X	RCS ACTIVATE SIG A	PCME					ACT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0171	X	RCS ACTIVATE SIG B	PCME					ACT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0173	X	CM RCS PRESS SIG A	PCME					PRESS	EVENT	2	10	S/S	XXXXXXXXXXX
C D0174	X	CM RCS PRESS SIG B	PCME					PRESS	EVENT	2	10	S/S	XXXXXXXXXXX
C D0200	V	DC VOLTAGE LOGIC BUS A	PCM				+0	+40	VDC	2	10	S/S	XXXXXXXXXXX
C D0201	V	DC VOLTAGE LOGIC BUS B	PCM				+0	+40	VDC	2	10	S/S	XXXXXXXXXXX
C D0230	X	FWD HS JETTISON A	PCME					JETT	EVENT	2	10	S/S	XXXXXXXXXXX
C D0231	X	FWD HS JETTISON B	PCME					JETT	EVENT	2	10	S/S	XXXXXXXXXXX
C D1154	X	CSM-LM LOCK RING SEP RELAY A	PCME					SEP	EVENT	2	10	S/S	XXXXXXXX
C D1155	X	CSM-LM LOCK RING SEP RELAY B	PCME					SEP	EVENT	2	10	S/S	XXXXXXXX

OPER

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
EARTH LANDING SEQUENCE CONTROLLER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C E0001 X	DROGUE DEPLOY RELAY CLOSE A	PCME					DEPLOY	EVENT	2	10	S/S	XXXXXXXXXXX
C E0002 X	DROGUE DEPLOY RELAY CLOSE B	PCME					DEPLOY	EVENT	2	10	S/S	XXXXXXXXXXX
C E0003 X	MAIN CHUTE DEPL-DRG REL RLY A	PCME					DEPLOY	EVENT	2	10	S/S	XXXXXXXXXXX
C E0004 X	MAIN CHUTE DEPL-DRG REL RLY B	PCME					DEPLOY	EVENT	2	10	S/S	XXXXXXXXXXX
C E0035 P	ALTIMETER		M			+0	+60K	FT	1			XXXXXXXXXXX
C E0321 X	MAIN CHUTE DISCONNECT RELAY A	PCME					DISC	EVENT	2	10	S/S	XXXXXXXXXXX
C E0322 X	MAIN CHUTE DISCONNECT RELAY B	PCME					DISC	EVENT	2	10	S/S	XXXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
ENVIRONMENTAL CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C F0001 P	PRESSURE CABIN	PCM+	M			+0	+17	PSIA	1	1	S/S	XXXXXXXXXXX
C F0002 T	TEMP CABIN	PCM+	M			+40	+125	DEG F	1	1	S/S	XXXXXXXXXXX
C F0003 P	PRESS O2 SUIT TO CABIN DIFF	PCM	SM			+0	+5.2	INH2O	1	10	S/S	XX
/C F0003 P	PRESS O2 SUIT TO CABIN DIFF	PCM	M			-5	+5	INH2O	1	10	S/S	XXXXXXXXX
C F0005 P	PRESS CO2 PARTIAL	PCM+	M *			+0	+30	MMHG	1	1	S/S	XXXXXXXXXXX
C F0006 P	PRESS SURGE TANK	PCM	SM			+50	+1050	PSIA	1	1	S/S	XXX
/C F0006 P	PRESS SURGE TANK	PCM+	SM			+50	+1050	PSIA	1	10	S/S	XXXXXXXX
C F0008 T	TEMP SUIT SUPPLY MANIF	PCM+	M			+20	+95	DEG F	1	1	S/S	XXXXXXXXXXX
C F0009 Q	QUANTITY WASTE WATER TANK	PCM+	SM			+0	+100	PCNT	1	1	S/S	XXXXXXXXXXX
C F0010 Q	QUAN POTABLE H2O TANK	PCM+	SM			+0	+100	PCNT	1	1	S/S	XXXXXXXXXXX
C F0012 P	PRESS SUIT DEMAND REG SENSE	PCM+	M			+0	+17	PSIA	1	10	S/S	XXXXXXXXXXX
C F0015 P	PRESS SUIT COMPRESSOR DIFF	PCM+	SM *			+0	+1	PSID	1	10	S/S	XX
/C F0015 P	PRESS SUIT COMPRESSOR DIFF	PCM+	M *			+0	+1	PSID	1	10	S/S	XXXXXXXXX
C F0016 P	PRESS GLYCOL PUMP OUTLET	PCM+	SM			+0	+60	PSIG	1	10	S/S	XXXXXXXXXXX
C F0017 T	TEMP GLYCOL EVAP OUTLET STEAM	PCM				+20	+95	DEG F	2	1	S/S	XXXXXXXXXXX
C F0018 T	TEMP GLYCOL EVAP OUTLET LIQUID	PCM+	SM			+25	+75	DEG F	1	1	S/S	XXXXXXXXXXX
C F0019 Q	QUANTITY GLYCOL ACCUM	PCM	SM			+0	+100	PCNT	1	1	S/S	XXX
/C F0019 Q	QUANTITY GLYCOL ACCUM	PCM+	SM			+0	+100	PCNT	1	10	S/S	XXXXXXXX
C F0020 T	TEMP SPACE RADIATOR OUTLET	PCM+	M *			-50	+100	DEG F	1	1	S/S	XXXXXXXXXXX
C F0034 P	BACK PRESS GLYCOL EVAPORATOR	PCM	SM			+0.05	+0.25	PSIA	1	1	S/S	XXXXXXXXXX
/C F0034 P	BACK PRESS GLYCOL EVAPORATOR	PCM	M			+0.05	+0.25	PSIA	1	1	S/S	X
C F0035 R	FLOWRATE ECS O2	PCM+	M			+0.2	+1.0	LB/HR	1	10	S/S	XXX
/C F0035 R	FLOWRATE ECS O2	PCM	M			+0.2	+1.0	LB/HR	1	10	S/S	XXXXXXXX
C F0036 P	PRESS OUTLET O2 REG SUPPLY	PCM				+0	+150	PSIG	2	10	S/S	XXX
/C F0036 P	PRESS OUTLET O2 REG SUPPLY	PCM+				+0	+150	PSIG	2	10	S/S	XXXXXXXX
C F0070 P	PRESS SECONDARY GLYCOL PUMP OUT	PCM	SM			+0	+60	PSIG	1	10	S/S	XXX
/C F0070 P	PRESS SECONDARY GLYCOL PUMP OUT	PCM+	SM			+0	+60	PSIG	1	10	S/S	XXXXXXXX
C F0071 T	TEMP SECONDARY EVAP OUT LIQUID	PCM	SM			+25	+75	DEG F	1	1	S/S	XXX
/C F0071 T	TEMP SECONDARY EVAP OUT LIQUID	PCM+	SM			+25	+75	DEG F	1	10	S/S	XXXXXXXX
C F0072 Q	QUANTITY SECONDARY GLYCOL ACCUM	PCM	SM			+0	+100	PCNT	1	1	S/S	XXX
/C F0072 Q	QUANTITY SECONDARY GLYCOL ACCUM	PCM+	SM			+0	+100	PCNT	1	10	S/S	XXXXXXXX
C F0073 P	PRESS SECONDARY EVAP OUT STEAM	PCM	SM			+0.05	+0.25	PSIA	1	1	S/S	XXXXXXXXXX
/C F0073 P	PRESS SECONDARY EVAP OUT STEAM	PCM				+0.05	+0.25	PSIA	2	1	S/S	X
C F0105 X	EMERGENCY O2 FLOW INDICATION		L *				EMRG	EVENT	1			XXXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
ENVIRONMENTAL CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
C F0120 P	PRESSURE WATER AND GLYCOL TANKS	PCM				0	+50	PSIA	2	1	S/S	XXXXXXXXX
C F0157 R	RATE GLYCOL PRI COLDPLATE OUTLET	PCM				+150	+300	LB/HR	2	10	S/S	XXXXXXXXXXX
C F0181 T	TEMP GLYCOL EVAPORATOR INLET	PCM				+35	+100	DEG F	2	1	S/S	XXXXXXXXXXX
S F0260 T	TEMP PRIMARY RADIATOR INLET	PCM+	SM			+55	+120	DEG F	1	1	S/S	XXXXXXXXXXX
S F0262 T	TEMP SECONDARY RADIATOR INLET	PCM+	SM			+55	+120	DEG F	1	1	S/S	XXXXXXXXXXX
S F0263 T	TEMP SECONDARY RADIATOR OUTLET	PCM+	M			+30	+70	DEG F	1	1	S/S	XXXXXXXXXXX
S F0266 X	RADIATOR FLOW CONT SYS 1 OR 2	PCME	TB				SYS 2	EVENT	1	10	S/S	XXXXXXXXXXX
C F0460 T	TEMP WASTE WATER DUMP NOZZLE	PCM+				+0	+100	DEG F	2	1	S/S	XXX
/C F0460 T	TEMP URINE DUMP NOZZLE	PCM+				+0	+100	DEG F	2	1	S/S	XXXXXXX
C F0461 T	TEMP URINE DUMP NOZZLE	PCM+				0	+100	DEG F	2	1	S/S	X
/C F0461 T	TEMP WASTE WATER DUMP NOZZLE	PCM+				0	+100	DEG F	2	1	S/S	XXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
GUIDANCE AND NAVIGATION

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S2111111111+S T0000000111 U 7V1346789012 B
C G0001 V	COMPUTER DIGITAL DATA 40 BITS	PCMD+				NA	NA	NA	2	50	S/S	XXXXXXXXXXX
C G1040 V	+120 VDC PIPA SUPPLY DC LEVEL	PCM				+85	+135	VDC	2	1	S/S	XXXXXXXXXXX
C G1110 V	2.5 VDC TM BIAS	PCM+				0	+5	VDC	2	1	S/S	XXXXXXXXXXX
C G1201 V	IMU 28V .8KC 1 PCT 0 DEG RMS	PCM				0	31.1	VRMS	2	1	S/S	XXXXXXXXXXX
C G1331 V	3.2KC 28V SUPPLY	PCM				0	31.1	VRMS	2	1	S/S	XXXXXXXXXXX
C G1513 X	+28V IMU STANDBY	PCME				OFF	STDBY	EVENT	2	10	S/S	XXXXXXXXXXX
C G1523 X	+28V CMC OPERATE	PCME				OFF	OPER	EVENT	2	10	S/S	XXXXXXXXXXX
C G1533 X	+28V OPTX OPERATE	PCME				OFF	OPER	EVENT	2	10	S/S	XXXXXXXXXXX
C G2112 V	IG 1X RESOLVER OUTPUT SIN	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2113 V	IG 1X RESOLVER OUTPUT COS	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2117 V	IGA SERVO ERROR IN PHASE	PCM				-3.0	+3.0	VRMS	2	100	S/S	XXXXXXXXXXX
C G2142 V	MG 1X RESOLVER OUTPUT SIN	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2143 V	MG 1X RESOLVER OUTPUT COS	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2147 V	MGA SERVO ERROR IN PHASE	PCM				-3.0	+3.0	VRMS	2	100	S/S	XXXXXXXXXXX
C G2172 V	OG 1X RESOLVER OUTPUT SIN	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2173 V	OG 1X RESOLVER OUTPUT COS	PCM				0	360	DEG	2	10	S/S	XXXXXXXXXXX
C G2177 V	OGA SERVO ERROR IN PHASE	PCM				-3.0	+3.0	VRMS	2	100	S/S	XXXXXXXXXXX
C G2300 T	PIPA TEMPERATURE	PCM+				+120	+140	DEG F	2	1	S/S	XXXXXXXXXXX
C G3721 V	SHAFT CDU DAC OUTPUT	PCM				-10	+10	VRMS	2	10	S/S	XXXXXXXXXXX
C G3722 V	TRUNNION CDU DAC OUTPUT	PCM				-10	+10	VRMS	2	10	S/S	XXXXXXXXXXX
C G5040 X	CMC WARNING	PCME	L *			WARN		EVENT	1	10	S/S	XXXXXXXXXXX
C G5041 X	ISS WARNING		L *				WARN	EVENT	1			XXXXXXXXXXX
C G5042 X	PGNS WARNING		L	A			WARN	EVENT	1			XXXXXXXXXXX
C G5050 X	DSKY UP-DATA LINK ACTIVE		L				ACTIV	EVENT	1			XXXXXXXXXXX
C G5054 X	DSKY ISS ATTITUDE INVALID		L				NO ATT	EVENT	1			XXXXXXXXXXX
C G5055 X	DSKY CMC STANDBY MODE		L				STDBY	EVENT	1			XXXXXXXXXXX
C G5056 X	DSKY RELEASE KEYBOARD INDICATE		L				K REL	EVENT	1			XXXXXXXXXXX
C G5057 X	DSKY GIMBAL LOCK WARNING		L				GMB LK	EVENT	1			XXXXXXXXXXX
C G5058 X	DSKY IMU TEMP OUT OF LIMITS		L				TEMP	EVENT	1			XXXXXXXXXXX
C G5059 X	DSKY CMC PROGRAM CHECK FAIL		L				PROG	EVENT	1			XXXXXXXXXXX
C G5060 X	DSKY CMC RESTART INDICATE		L				RESTRT	EVENT	1			XXXXXXXXXXX
C G5061 X	DSKY TRACKER ACQUISITION INDICATE		L				TRACK	EVENT	1			XXXXXXXXXXX
C G5062 X	DSKY OPERATOR ERROR INDICATE		L				ERROR	EVENT	1			XXXXXXXXXXX

OPER

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
GUIDANCE AND NAVIGATION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C G5063 X	DSKY COMPUTER ACTIVITY INDICATE		L				ACTIVITY	EVENT	1			XXXXXXXXXXX
C G5064 X	DSKY PROGRAM DISPLAY		L				PROGRAM	EVENT	1			XXXXXXXXXXX
C G5065 X	DSKY VERB DISPLAY		L				VERB	EVENT	1			XXXXXXXXXXX
C G5066 X	DSKY NOUN DISPLAY		L				NOUN	EVENT	1			XXXXXXXXXXX
C G5067 X	DSKY REGISTER R1		L				DATA	EVENT	1			XXXXXXXXXXX
C G5068 X	DSKY REGISTER R2		L				DATA	EVENT	1			XXXXXXXXXXX
C G5069 X	DSKY REGISTER R3		L				DATA	EVENT	1			XXXXXXXXXXX
C G5070 H	TELESCOPE ANGLE COUNTER SHAFT		M			0	+360	DEG	1			XXXXXXXXXXX
C G5071 H	TELESCOPE ANGLE COUNTER TRUNNION		M			+350	+90	DEG	1			XXXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
STABILIZATION AND CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	C A L	DATA RANGE LOW	HIGH	UNITS	C A T	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C H3500	H FDAI CMC/SCS ATT ERROR PITCH	PCM	M			- OR	+5/5/15	DEG	1	50	S/S	XXXXXXXXXXX
C H3501	H FDAI CMC/SCS ATT ERROR YAW	PCM	M			- OR	+5/5/15	DEG	1	50	S/S	XXXXXXXXXXX
C H3502	H FDAI CMC/SCS ATT ERROR ROLL	PCM	M			- OR	+5/5/50	DEG	1	100	S/S	XXXXXXXXXXX
C H3503	R FDAI SCS BODY RATE PITCH	PCM	M			- OR	+1/5/10	DEG/S	1	100	S/S	XXXXXXXXXXX
C H3504	R FDAI SCS BODY RATE YAW	PCM	M			- OR	+1/5/10	DEG/S	1	100	S/S	XXXXXXXXXXX
C H3505	R FDAI SCS BODY RATE ROLL	PCM	M			- OR	+1/5/50	DEG/S	1	100	S/S	XXXXXXXXXXX
C H3517	H GIMBAL POSITION PITCH 1 OR 2	PCM	M			-5.0	+5.0	DEG	1	100	S/S	XXXXXXXXXXX
C H3518	H GIMBAL POSITION YAW 1 OR 2	PCM	M			-5.0	+5.0	DEG	1	100	S/S	XXXXXXXXXXX
C H3546	X RCS SOLENOID ACTIVATE +PITCH/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3546	X RCS SOLENOID ACTIVATE C3/13/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3547	X RCS SOLENOID ACTIVATE -PITCH/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3547	X RCS SOLENOID ACTIVATE A4/14/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3548	X RCS SOLENOID ACTIVATE +PITCH/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3548	X RCS SOLENOID ACTIVATE A3/23/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3549	X RCS SOLENOID ACTIVATE -PITCH/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3549	X RCS SOLENOID ACTIVATE C4/24/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3550	X RCS SOLENOID ACTIVATE +YAW/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3550	X RCS SOLENOID ACTIVATE D3/25/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3551	X RCS SOLENOID ACTIVATE -YAW/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3551	X RCS SOLENOID ACTIVATE B4/26/+X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3552	X RCS SOLENOID ACTIVATE +YAW/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3552	X RCS SOLENOID ACTIVATE B3/15/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3553	X RCS SOLENOID ACTIVATE -YAW/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3553	X RCS SOLENOID ACTIVATE D4/16/-X	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3554	X RCS SOLENOID ACTIVATE +ROLL/+Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3554	X RCS SOLENOID ACTIVATE B1/11/+Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3555	X RCS SOLENOID ACTIVATE -ROLL/+Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3555	X RCS SOLENOID ACTIVATE D2/22/+Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3556	X RCS SOLENOID ACTIVATE +ROLL/-Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3556	X RCS SOLENOID ACTIVATE D1/21/-Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3557	X RCS SOLENOID ACTIVATE -ROLL/-Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3557	X RCS SOLENOID ACTIVATE B2/12/-Z	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3558	X RCS SOLENOID ACTIVATE +ROLL/+Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3558	X RCS SOLENOID ACTIVATE A1/+Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
STABILIZATION AND CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
C H3559 X	RCS SOLENOID ACTIVATE -ROLL/+Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3559 X	RCS SOLENOID ACTIVATE C2/+Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3560 X	RCS SOLENOID ACTIVATE +ROLL/-Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3560 X	RCS SOLENOID ACTIVATE C1/-Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3561 X	RCS SOLENOID ACTIVATE -ROLL/-Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XX
/C H3561 X	RCS SOLENOID ACTIVATE A2/-Y	PCME				FIRE	ENABLE	EVENT	2	200	S/S	XXXXXXXXX
C H3566 X	SCS GYRO ASSY 1 TEMP ABNORMAL		L *			NORM	ABNORM	EVENT	1			XXXXXXXXXX
C H3567 X	SCS GYRO ASSY 2 TEMP ABNORMAL		L *			NORM	ABNORM	EVENT	1			XXXXXXXXXX
C H3574 X	TRANSLATIONAL CONTROLLER +X CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3575 X	TRANSLATIONAL CONTROLLER -X CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3576 X	TRANSLATIONAL CONTROLLER +Y CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3577 X	TRANSLATIONAL CONTROLLER -Y CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3578 X	TRANSLATIONAL CONTROLLER +Z CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3579 X	TRANSLATIONAL CONTROLLER -Z CMD	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3582 V	SCS TVC AUTO COMMAND PITCH	PCM				-10	+10	VDC	2	100	S/S	XXXXXXXXX
C H3583 V	SCS TVC AUTO COMMAND YAW	PCM				-10	+10	VDC	2	100	S/S	XXXXXXXXX
C H3585 H	ROTATIONAL CONTROL/MTVC PITCH CMD	PCM				-11.5	+11.5	DEG	2	50	S/S	XXXXXXXXX
C H3586 H	ROTATIONAL CONTROL/MTVC YAW CMD	PCM				-11.5	+11.5	DEG	2	50	S/S	XXXXXXXXX
C H3587 H	ROTATIONAL CONTROLLER ROLL CMD	PCM				-11.5	+11.5	DEG	2	50	S/S	XXXXXXXXX
C H3588 X	ATTITUDE DEADBAND MINIMUM	PCME				MAX	MIN	EVENT	2	10	S/S	XXXXXXXXXX
C H3590 X	HIGH PROPORTIONAL RATE LIMIT	PCME				LOW	HIGH	EVENT	2	10	S/S	XXXXXXXXXX
C H3592 X	FDAI SCALE ERROR 5, RATE 5	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3593 X	FDAI SCALE ERR 50/15,RATE 50/10	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3600 X	SCS DELTA V CG-LM/CSM POS	PCME				CSM	LM/CSM	EVENT	2	10	S/S	X XXXXXXXX
C H3601 X	DIRECT RCS SWITCH NO 1 ENABLE PCS	PCME				OFF	ENABLE	EVENT	2	10	S/S	XXXXXXXXX
C H3602 X	DIRECT RCS SWITCH NO 2 ENABLE PCS	PCME				OFF	ENABLE	EVENT	2	10	S/S	XXXXXXXXX
C H3604 X	SPS SOLENOID DRIVER NO 1	PCME				FIRE	ENABLE	EVENT	2	10	S/S	XXXXXXXXXX
C H3605 X	SPS SOLENOID DRIVER NO 2	PCME				FIRE	ENABLE	EVENT	2	10	S/S	XXXXXXXXXX
C H3606 X	LIMIT CYCLE SWITCH OFF POS	PCME				ON	OFF	EVENT	2	10	S/S	XXXXXXXXX
C H3607 X	SPACECRAFT CONTROL SOURCE SWITCH	PCME				CMC	SCS	EVENT	2	10	S/S	XXXXXXXXXX
C H3609 X	ROLL MANUAL ATT SW ACCEL CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3610 X	ROLL MAN ATT SW MIN IMP CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3612 X	PITCH MANUAL ATT SW ACCEL CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
STABILIZATION AND CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C H3613 X	PITCH MAN ATT SW MIN IMP CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3615 X	YAW MANUAL ATT SW ACCEL CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3616 X	YAW MANUAL ATT SW MIN IMP CMD PCS	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXX
C H3623 X	GYRO 1 COMB SPIN MOTORS RUN DET	PCME				LOW	NORM	EVENT	2	10	S/S	XXXXXXXXXXX
C H3624 X	GYRO 2 COMB SPIN MOTORS RUN DET	PCME				LOW	NORM	EVENT	2	10	S/S	XXXXXXXXXXX
C H3635 X	BMAG MODE SW-ROLL ATT 1 RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3636 X	BMAG MODE SW-ROLL RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3638 X	BMAG MODE SW-PITCH ATT 1 RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3639 X	BMAG MODE SW-PITCH RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3641 X	BMAG MODE SW-YAW ATT 1 RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3642 X	BMAG MODE SW-YAW RATE 2	PCME				OFF	ON	EVENT	2	10	S/S	XXXXXXXXXX
C H3666 C	TVC PITCH DIFF CLUTCH CURRENT	PCM				-0.807	+0.807	AMP	2	200	S/S	XXXXXXXXX
C H3667 C	TVC YAW DIFF CLUTCH CURRENT	PCM				-0.807	+0.807	AMP	2	100	S/S	XXXXXXXXX
C H3746 H	ENTRY MONITOR ROLL INDICATOR		M			0	360	DEG	1			XXXXXXXXXX
C H3747 H	EMS G-V PLOTTER		M						1			XXXXXXXXXX
C H3748 X	0.05 G THRESHOLD		L				0.05	G EVENT	1			XXXXXXXXXX
C H3749 X	REQUIRED LIFT ATTITUDE-UP		L			OFF	ON	EVENT	1			XXXXXXXXXX
C H3750 X	REQUIRED LIFT ATTITUDE-DOWN		L			OFF	ON	EVENT	1			XXXXXXXXXX
C H3751 R	EMS DELTA V/RANGE TO GO		SM				14K	NM	1			XXXXXXXXXX
C H3752 X	SPS THRUST		L				THRUST	EVENT	1			XXXXXXXXXX
C H3755 A	ACCELERATION G INDICATOR		M			-1	+15	G	1			XXXXXXXXXX
C H3757 H	MANUAL ATTITUDE DIGITAL SET PITCH		M			+0	+360	DEG	1			XXXXXXXXXX
C H3758 H	MANUAL ATTITUDE DIGITAL SET YAW		M			+0	+360	DEG	1			XXXXXXXXXX
C H3759 H	MANUAL ATTITUDE DIGITAL SET ROLL		M			+0	+360	DEG	1			XXXXXXXXXX

OPER

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
CREW EQUIPMENT

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
C J0060 J	EKG COMMANDER LH COUCH	PCM				+0.1	+5	MV	2	200	S/S	XXXXXXXXXX
C J0061 J	EKG CMD MODULE PILOT CTR COUCH					+0.1	+5	MV	2			XX
/C J0061 J	EKG CMD MODULE PILOT CTR COUCH	PCM				+0.1	+5	MV	2	200	S/S	XXXXXXXX
C J0062 J	EKG LUNAR MODULE PILOT RH COUCH					+0.1	+5	MV	2			XX
/C J0062 J	EKG LUNAR MODULE PILOT RH COUCH	PCM				+0.1	+5	MV	2	200	S/S	XXXXXXXX
C J0200 R	RESP RATE COMMANDER LH COUCH	PCM				-5	+5	OHMS	2	50	S/S	XXXXXXXXXX
C J0201 R	RESP RATE CM PILOT CTR COUCH					-5	+5	OHMS	2			XX
/C J0201 R	RESP RATE CM PILOT CTR COUCH	PCM				-5	+5	OHMS	2	50	S/S	XXXXXXXX
C J0202 R	RESP RATE LM PILOT RH COUCH					-5	+5	OHMS	2			XX
/C J0202 R	RESP RATE LM PILOT RH COUCH	PCM				-5	+5	OHMS	2	50	S/S	XXXXXXXX
C J0210 X	SEL SW POSITION ASTRO 1	PCME				OFF	LH	EVENT	2	10	S/S	XX
C J0211 X	SEL SW POSITION ASTRO 2	PCME				OFF	CTR	EVENT	2	10	S/S	XX
C J0212 X	SEL SW POSITION ASTRO 3	PCME				OFF	RH	EVENT	2	10	S/S	XX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
FLIGHT TECHNOLOGY

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	ACCESSIBILITY GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	RESPONSE RATE	RESPONSE UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C K0026 A	CM ACCELEROMETER X-AXIS	PCM				-2	+10	G	2	100	S/S	XXXXXXXXXX
C K0027 A	CM ACCELEROMETER Y-AXIS	PCM				-2	+2	G	2	100	S/S	XXXXXXXXXX
C K0028 A	CM ACCELEROMETER -Z AXIS	PCM				-2	+2	G	2	100	S/S	XXXXXXXXXX
C K1040 N	16 MM EVENT SEQUENCE CAMERA								1	16	FPS	XXXXXXXXXX
C K1050 K	RADIATION SURVEY METER		M	A		+0.1	+100	RAD/H	1			XXXXXXXXX
C K1051 K	RADIATION DOSIMETER 1	PCM				+0	+1K	RAD/H	2	10	S/S	XXXXXXXXX
C K1052 K	RADIATION DOSIMETER 2	PCM				+0	+1K	RAD/H	2	10	S/S	XXXXXXXXX
C K1053 R	DOSIMETER RATE CHANGE	PCM				+0	+5	VDC	2	1	S/S	XXXXXXXXX
C K1065 W	DIGITAL EVENT TIMER		M			+0	+60	MIN	1			XXXXXXXXXX
C K1070 X	C/W PANEL POWER SUPPLY FAILLRE		L	*			FAIL	EVENT	1			XXXXXXXXXXX
C K1072 W	MISSION DIGITAL TIMER		M			+0	+1000	HRS	1			XXXXXXXXXX
C K1074 W	DIGITAL EVENT TIMER,LEB		M	A		-60	+60	MIN	1			XXXXXXXXXX
C K1075 W	MISSION DIGITAL TIMER, LEB		M	A		+0	+1000	HRS	1			XXXXXXXXXX

OPER

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
SCIENTIFIC EQUIPMENT

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
S L1001 U	SCIENTIFIC EXPERIMENT NO 1	PCM+							5	1	S/S	XXXXXXXXXX
/S L1001 U	SCIENTIFIC EXPERIMENT NO 1	PCM							5	1	S/S	X
S L1002 U	SCIENTIFIC EXPERIMENT NO 2	PCM+							5	1	S/S	XXXXXXXXXX
/S L1002 U	SCIENTIFIC EXPERIMENT NO 2	PCM							5	1	S/S	X
S L1003 U	SCIENTIFIC EXPERIMENT NO 3	PCM							5	1	S/S	XXXXXXXXXXX
S L1004 U	SCIENTIFIC EXPERIMENT NO 4	PCM							5	1	S/S	XXXXXXXXXXX
S L1005 U	SCIENTIFIC EXPERIMENT NO 5	PCM							5	1	S/S	XXXXXXXXXXX
S L1006 U	SCIENTIFIC EXPERIMENT NO 6	PCM							5	1	S/S	XXXXXXXXXXX
S L1007 U	SCIENTIFIC EXPERIMENT NO 7	PCM							5	1	S/S	XXXXXXXXXXX
S L1008 U	SCIENTIFIC EXPERIMENT NO 8	PCM							5	1	S/S	XXXXXXXXXXX
S L1009 U	SCIENTIFIC EXPERIMENT NO 9	PCM							5	1	S/S	XXXXXXXXXXX
S L1010 U	SCIENTIFIC EXPERIMENT NO 10	PCM							5	1	S/S	XXXXXXXXXXX
S L1011 U	SCIENTIFIC EXPERIMENT NO 11	PCM							5	1	S/S	XXXXXXXXXXX
S L1012 U	SCIENTIFIC EXPERIMENT NO 12	PCM							5	1	S/S	XXXXXXXXXXX
S L1013 U	SCIENTIFIC EXPERIMENT NO 13	PCM							5	1	S/S	XXXXXXXXXXX
S L1014 U	SCIENTIFIC EXPERIMENT NO 14	PCM							5	1	S/S	XXXXXXXXXXX
S L1015 U	SCIENTIFIC EXPERIMENT NO 15	PCM							5	1	S/S	XXXXXXXXXXX
S L1016 U	SCIENTIFIC EXPERIMENT NO 16	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1017 U	SCIENTIFIC EXPERIMENT NO 17	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1018 U	SCIENTIFIC EXPERIMENT NO 18	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1019 U	SCIENTIFIC EXPERIMENT NO 19	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1020 U	SCIENTIFIC EXPERIMENT NO 20	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1021 U	SCIENTIFIC EXPERIMENT NO 21	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1022 U	SCIENTIFIC EXPERIMENT NO 22	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1023 U	SCIENTIFIC EXPERIMENT NO 23	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1024 U	SCIENTIFIC EXPERIMENT NO 24	PCMD+							5	10	S/S	XXXXXXXXXXX
S L1025 U	SCIENTIFIC EXPERIMENT NO 25	PCMD+							5	10	S/S	XXXXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S P0001 P	HE PRESS TANK	PCM+				+0	+5K	PSIA	2	10	S/S	XX XXXXXXXX
/S P0001 P	HE PRESS TANK	PCM				+0	+5K	PSIA	2	1	S/S	X
S P0002 T	HE TEMP TANK	PCM				-100	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S P0003 P	PRESS OXIDIZER TANKS	PCM+	M *			+0	+250	PSIA	1	10	S/S	XXXXXXXXXX
/S P0003 P	PRESS OXIDIZER TANKS	PCM+	M			+0	+250	PSIA	1	10	S/S	X
S P0006 P	PRESS FUEL TANKS	PCM+	M *			+0	+250	PSIA	1	10	S/S	XXXXXXXXXX
/S P0006 P	PRESS FUEL TANKS	PCM+	M			+0	+250	PSIA	1	10	S/S	X
S P0011 Q	TOTAL QUANTITY OXIDIZER		M			+0	+100	PCNT	1			XXXXXXXXXX
S P0012 Q	TOTAL QUANTITY FUEL		M			+0	+100	PCNT	1			XXXXXXXXXX
S P0022 H	POSITION FUEL/OX VLV 1 POT B	PCM				+0	+90	DEG	2	10	S/S	XXXXXXXXXXX
S P0023 H	POSITION FUEL/OX VLV 2 POT B	PCM				+0	+90	DEG	2	10	S/S	XXXXXXXXXXX
S P0024 H	POSITION FUEL/OX VLV 3 POT B	PCM				+0	+90	DEG	2	10	S/S	XXXXXXXXXXX
S P0025 H	POSITION FUEL/OX VLV 4 POT B	PCM				+0	+90	DEG	2	10	S/S	XXXXXXXXXXX
S P0026 H	POSITION FUEL/OX VLV 1 POT A		M			+0	+90	DEG	1			XXXXXXXXXXX
S P0027 H	POSITION FUEL/OX VLV 2 POT A		M			+0	+90	DEG	1			XXXXXXXXXXX
S P0028 H	POSITION FUEL/OX VLV 3 POT A		M			+0	+90	DEG	1			XXXXXXXXXXX
S P0029 H	POSITION FUEL/OX VLV 4 POT A		M			+0	+90	DEG	1			XXXXXXXXXXX
S P0030 X	HE ISOLATION VLV 1		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXXX
S P0031 X	HE ISOLATION VLV 2		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXXX
S P0035 P	HE TANK PRESSURE DISPLAY		SM			+0	+5K	PSIA	1			XXXXXXXXXXX
S P0045 T	TEMP ENGINE VALVE BODY	PCM				+0	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S P0046 X	PU VALVE MAX		TB				MAX	EVENT	1			XXXXXXXXXX
S P0047 X	PU VALVE MIN		TB				MIN	EVENT	1			XXXXXXXXXX
S P0048 T	TEMP ENGINE FUEL FEED LINE	PCM+	M			+0	+200	DEG F	1	1	S/S	XXXXXXXXXXX
S P0049 T	TEMP ENGINE OXIDIZER FEED LINE	PCM+	SM A			+0	+200	DEG F	1	1	S/S	XXXXXXXXXX
/S P0049 T	TEMP ENGINE OXIDIZER FEED LINE	PCM+				+0	+200	DEG F	1	1	S/S	X
S P0054 T	TEMP 1 OX DISTRIBUTION LINE	PCM				+0	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S P0057 T	TEMP 1 FUEL DISTRIBUTION LINE	PCM				+0	+200	DEG F	2	1	S/S	XXXXXXXXXXX
S P0061 T	ENG INJECTOR FLANGE TEMP NO 1	PCM	L *			+0	+600	DEG F	1	1	S/S	XXXXXXXXXXX
S P0062 T	ENG INJECTOR FLANGE TEMP NO 2	PCM	L *			+0	+600	DEG F	1	1	S/S	XXXXXXXXXXX
S P0600 P	ENG VLV ACT SYS TANK PRESS PRI	PCM	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX
S P0601 P	ENG VLV ACT SYS TANK PRESS SEC	PCM	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S P0640	Q	PROPELLANT UNBALANCE (OXIDIZER)		M			-600	+600	LB	1			XXXXXXXXXX
S P0655	Q	QUAN OX TANK 1 PRI - TOTAL AUX	PCM				+0	+50	PCNT	2	1	S/S	XXXXXXXXXX
S P0656	Q	QUAN OX TANK 2	PCM				+0	+60	PCNT	2	1	S/S	XXXXXXXXXX
S P0657	Q	QUAN FUEL TANK 1 PRI - TOTAL AUX	PCM				+0	+50	PCNT	2	1	S/S	XXXXXXXXXX
S P0658	Q	QUAN FUEL TANK 2	PCM				+0	+60	PCNT	2	1	S/S	XXXXXXXXXX
S P0661	P	PRESS ENGINE CHAMBER	PCM	SM			+0	+150	PSIA	1	100	S/S	XXXXXXXXXX
S P0930	P	PRESS FUEL SM/ENG INTERFACE	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXXXX
S P0931	P	PRESS OX SM/ENG INTERFACE	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXXXX
S P1000	X	PITCH 1 GIMBAL DRIVE FAIL		L	*			FAIL	EVENT	1			XXXXXXXXXX
S P1001	X	YAW 1 GIMBAL DRIVE FAIL		L	*			FAIL	EVENT	1			XXXXXXXXXX
S P1002	X	SPS PU SENSOR FAIL		L	*			FAIL	EVENT	1			XXXXXXXXXX
S P1003	X	PITCH 2 GIMBAL DRIVE FAIL		L	*			FAIL	EVENT	1			XXXXXXXXXX
S P1004	X	YAW 2 GIMBAL DRIVE FAIL		L	*			FAIL	EVENT	1			XXXXXXXXXX
S P1022	X	SPS ROUGH COMBUSTION ENG CUTOFF		L	*			CUTOFF	EVENT	1	5M	SEC	XXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	C A L	DATA RANGE LOW	HIGH	UNITS	C A T	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C R0001 P	HE PRESS TANK A	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XX
/C R0001 P	HE PRESS TANK 1	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXX
C R0002 P	HE PRESS TANK B	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XX
/C R0002 P	HE PRESS TANK 2	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXX
C R0003 T	HE TEMP TANK A	PCM	SM			+0	+300	DEG F	1	1	S/S	X
/C R0003 T	HE TEMP TANK 1	PCM	SM			+0	+300	DEG F	1	1	S/S	X
/C R0003 T	HE TEMP TANK 1	PCM+	SM			+0	+300	DEG F	1	10	S/S	XXXXXXXX
/C R0003 T	HE TEMP TANK A		SM			+0	+300	DEG F	1			X
C R0004 T	HE TEMP TANK B	PCM	SM			+0	+300	DEG F	1	1	S/S	X
/C R0004 T	HE TEMP TANK 2	PCM	SM			+0	+300	DEG F	1	1	S/S	X
/C R0004 T	HE TEMP TANK 2	PCM+	SM			+0	+300	DEG F	1	10	S/S	XXXXXXXX
/C R0004 T	HE TEMP TANK B		SM			+0	+300	DEG F	1			X
C R0005 P	PRESS FUEL TANK A	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0005 P	PRESS FUEL TANK 1	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0005 P	PRESS FUEL TANK A	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
C R0006 P	PRESS FUEL TANK B	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0006 P	PRESS FUEL TANK 2	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0006 P	PRESS FUEL TANK B	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
C R0011 P	PRESS OXIDIZER TANK A	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0011 P	PRESS OXIDIZER TANK 1	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0011 P	PRESS OXIDIZER TANK A	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
C R0012 P	PRESS OXIDIZER TANK B	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0012 P	PRESS OXIDIZER TANK 2	PCM+	SM *			+0	+400	PSIA	1	10	S/S	X
/C R0012 P	PRESS OXIDIZER TANK B	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
C R0035 P	PRESS CM-RCS HELIUM MANIFOLD 1	PCM+	L *			0	+400	PSIA	2	10	S/S	XXXXXXXX
C R0036 P	PRESS CM-RCS HELIUM MANIFOLD 2	PCM+	L *			0	+400	PSIA	2	10	S/S	XXXXXXXX
C R0037 P	PRESS CM-RCS HE MANIF 1 DISPLAY		SM *			0	+400	PSIA	1			XXXXXXXX
C R0038 P	PRESS CM-RCS HE MANIF 2 DISPLAY		SM *			0	+400	PSIA	1			XXXXXXXX
C R1020 X	COMBINED PROP ISO VLV MON SYS A		TB			OPEN	CLOSE	EVENT	1			XX
/C R1020 X	COMBINED PROP ISO VLV MON SYS 1		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXX
C R1021 X	COMBINED PROP ISO VLV MON SYS B		TB			OPEN	CLOSE	EVENT	1			XX
/C R1021 X	COMBINED PROP ISO VLV MON SYS 2		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXX
C R2100 T	TEMP -P ENG INJECTOR SYS A		SM A			-50	+50	DEG F	1			X
/C R2100 T	TEMP 14 ENG INJECTOR SYS 1		SM A			-50	+50	DEG F	1			XXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S TC000000111 U 7V1346789012 B
C R2103 T	TEMP -Y ENG INJECTOR SYS A		SM	A		-50	+50	DEG F	1			X
/C R2103 T	TEMP 16 ENG INJECTOR SYS 1		SM	A		-50	+50	DEG F	1			XXXXXXXXX
C R2110 T	TEMP -P ENG INJECTOR SYS B		SM	A		-50	+50	DEG F	1			X
/C R2110 T	TEMP 24 ENG INJECTOR SYS 2		SM	A		-50	+50	DEG F	1			XXXXXXXXX
C R2114 T	TEMP CCW ENG INJECTOR SYS A		SM	A		-50	+50	DEG F	1			X
/C R2114 T	TEMP 12 ENG INJECTOR SYS 1		SM	A		-50	+50	DEG F	1			XXXXXXXXX
C R2116 T	TEMP +Y ENG INJECTOR SYS B		SM	A		-50	+50	DEG F	1			X
/C R2116 T	TEMP 25 ENG INJECTOR SYS 2		SM	A		-50	+50	DEG F	1			XXXXXXXXX
C R2119 T	TEMP CW ENG INJECTOR SYS B		SM	A		-50	+50	DEG F	1			X
/C R2119 T	TEMP 21 ENG INJECTOR SYS 2		SM	A		-50	+50	DEG F	1			XXXXXXXXX
S R5001 P	HE PRESS TANK A	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX
S R5002 P	HE PRESS TANK B	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX
S R5003 P	HE PRESS TANK C	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX
S R5004 P	HE PRESS TANK D	PCM+	SM			+0	+5K	PSIA	1	1	S/S	XXXXXXXXXXX
S R5005 T	HE TEMP TANK A	PCM+				-100	+200	DEG F	2	1	S/S	X
S R5006 T	HE TEMP TANK B	PCM+				-100	+200	DEG F	2	1	S/S	X
S R5007 T	HE TEMP TANK C	PCM+				-100	+200	DEG F	2	1	S/S	X
S R5008 T	HE TEMP TANK D	PCM+				-100	+200	DEG F	2	1	S/S	X
S R5013 T	HE TEMP TANK A	PCM+				+0	+100	DEG F	2	10	S/S	X
/S R5013 T	HE TEMP TANK A	PCM+	SM			+0	+100	DEG F	1	10	S/S	XXXXXXXXX
S R5014 T	HE TEMP TANK B	PCM+				+0	+100	DEG F	2	10	S/S	X
/S R5014 T	HE TEMP TANK B	PCM+	SM			+0	+100	DEG F	1	10	S/S	XXXXXXXXX
S R5015 T	HE TEMP TANK C	PCM+				+0	+100	DEG F	2	10	S/S	X
/S R5015 T	HE TEMP TANK C	PCM+	SM			+0	+100	DEG F	1	10	S/S	XXXXXXXXX
S R5016 T	HE TEMP TANK D	PCM+				+0	+100	DEG F	2	10	S/S	X
/S R5016 T	HE TEMP TANK D	PCM+	SM			+0	+100	DEG F	1	10	S/S	XXXXXXXXX
S R5025 Q	QUANTITY SM RCS PROPELLANT SYS A	PCM+	SM			+0	+100	PCT	1	1	S/S	XXXXXXXXXX
S R5026 Q	QUANTITY SM RCS PROPELLANT SYS B	PCM+	SM			+0	+100	PCT	1	1	S/S	XXXXXXXXXX
S R5027 Q	QUANTITY SM RCS PROPELLANT SYS C	PCM+	SM			+0	+100	PCT	1	1	S/S	XXXXXXXXXX
S R5028 Q	QUANTITY SM RCS PROPELLANT SYS D	PCM+	SM			+0	+100	PCT	1	1	S/S	XXXXXXXXXX
S R5046 X	COMB PROP ISO VLV MON SEC SYS A		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXX
S R5047 X	COMB PROP ISO VLV MON SEC SYS B		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXX
S R5048 X	COMB PROP ISO VLV MON SEC SYS C		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXX
S R5049 X	COMB PROP ISO VLV MON SEC SYS D		TB			CLOSE	OPEN	EVENT	1			XXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S R5050 X	COMBINED PROP ISO VLV MON SYS A		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5051 X	COMBINED PROP ISO VLV MON SYS B		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5052 X	COMBINED PROP ISO VLV MON SYS C		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5053 X	COMBINED PROP ISO VLV MON SYS D		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5065 T	TEMP ENGINE PACKAGE A	PCM	SM *			+0	+300	DEG F	1	1	S/S	XXXXXXXXXX
S R5066 T	TEMP ENGINE PACKAGE B	PCM	SM *			+0	+300	DEG F	1	1	S/S	XXXXXXXXXX
S R5067 T	TEMP ENGINE PACKAGE C	PCM	SM *			+0	+300	DEG F	1	1	S/S	XXXXXXXXXX
S R5068 T	TEMP ENGINE PACKAGE D	PCM	SM *			+0	+300	DEG F	1	1	S/S	XXXXXXXXXX
/S R5068 T	TEMP ENGINE PACKAGE D	PCM	SM			+0	+300	DEG F	1	1	S/S	X
S R5101 X	HE ISOLATION VLV A1 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5102 X	HE ISOLATION VLV B1 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5103 X	HE ISOLATION VLV C1 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5104 X	HE ISOLATION VLV D1 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5105 X	HE ISOLATION VLV A2 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5106 X	HE ISOLATION VLV B2 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5107 X	HE ISOLATION VLV C2 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5108 X	HE ISOLATION VLV D2 POSITION		TB			OPEN	CLOSE	EVENT	1			XXXXXXXXXXX
S R5729 P	A HE MANIFOLD PRESS	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XX
/S R5729 P	A HE MANIFOLD PRESS	PCM+				+0	+400	PSIA	2	10	S/S	XXXXXXXX
/S R5729 P	A HE MANIFOLD PRESS	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
S R5733 P	OXIDIZER MANIFOLD PRESS SYS A	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5733 P	OXIDIZER MANIFOLD PRESS SYS A	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXX
S R5737 P	FUEL MANIFOLD PRESS SYS A	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5737 P	FUEL MANIFOLD PRESS SYS A	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XXXXXXXX
S R5776 P	B HE MANIFOLD PRESS	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XX
/S R5776 P	B HE MANIFOLD PRESS	PCM+				+0	+400	PSIA	2	10	S/S	XXXXXXXX
/S R5776 P	B HE MANIFOLD PRESS	PCM+	SM			+0	+400	PSIA	1	10	S/S	X
S R5780 P	OXIDIZER MANIFOLD PRESS SYS B	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5780 P	OXIDIZER MANIFOLD PRESS SYS B	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXX
S R5784 P	FUEL MANIFOLD PRESS SYS B	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5784 P	FUEL MANIFOLD PRESS SYS B	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XXXXXXXX
S R5817 P	C HE MANIFOLD PRESS	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XX
/S R5817 P	C HE MANIFOLD PRESS	PCM+				+0	+400	PSIA	2	10	S/S	XXXXXXXX
/S R5817 P	C HE MANIFOLD PRESS	PCM+	SM			+0	+400	PSIA	1	10	S/S	X

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
S R5820 P	OXIDIZER MANIFOLD PRESS SYS C	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5820 P	OXIDIZER MANIFOLD PRESS SYS C	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXX
S R5821 P	OXIDIZER MANIFOLD PRESS SYS D	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5821 P	OXIDIZER MANIFOLD PRESS SYS D	PCM				+0	+300	PSIA	2	10	S/S	XXXXXXXX
S R5822 P	FUEL MANIFOLD PRESS SYS C	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5822 P	FUEL MANIFOLD PRESS SYS C	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XXXXXXXX
S R5823 P	FUEL MANIFOLD PRESS SYS D	PCM+				+0	+300	PSIA	2	10	S/S	XX
/S R5823 P	FUEL MANIFOLD PRESS SYS D	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XXXXXXXX
S R5830 P	D HE MANIFOLD PRESS	PCM+	SM *			+0	+400	PSIA	1	10	S/S	XX
/S R5830 P	D HE MANIFOLD PRESS	PCM+				+0	+400	PSIA	2	10	S/S	XXXXXXXX
/S R5830 P	D HE MANIFOLD PRESS	PCM+	SM			+0	+400	PSIA	1	10	S/S	X

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
L/V EMERGENCY DETECTION

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7VI3467890IZ B
B S0016	X	LAUNCH VEH GUIDANCE FAIL A		L				G FAIL	EVENT	1			XXXXXXXXXXX
B S0017	X	LAUNCH VEH GUIDANCE FAIL B		L				G FAIL	EVENT	1			XXXXXXXXXXX
B S0020	X	LAUNCH VEH RATE EXCESSIVE A		L				R EX	EVENT	1			XXXXXXXXXXX
B S0021	X	LAUNCH VEH RATE EXCESSIVE B		L				R EX	EVENT	1			XXXXXXXXXXX
B S0030	X	ENG NO 1 OUT A		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0031	X	ENG NO 1 OUT B		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0032	X	ENG NO 2 OUT A		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0033	X	ENG NO 2 OUT B		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0034	X	ENG NO 3 OUT A		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0035	X	ENG NO 3 OUT B		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0036	X	ENG NO 4 OUT A		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0037	X	ENG NO 4 OUT B		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0038	X	ENG NO 5 OUT A		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0039	X	ENG NO 5 OUT B		L				E OUT	EVENT	1			XXXXXXXXXXX
B S0040	X	ENG NO 6 OUT A		L				E OUT	EVENT	1			X
B S0041	X	ENG NO 6 OUT B		L				E OUT	EVENT	1			X
B S0042	X	ENG NO 7 OUT A		L				E OUT	EVENT	1			X
B S0043	X	ENG NO 7 OUT B		L				E OUT	EVENT	1			X
B S0044	X	ENG NO 8 OUT A		L				E OUT	EVENT	1			X
B S0045	X	ENG NO 8 OUT B		L				E OUT	EVENT	1			X
B S0050	P	S-II FUEL TK/S-IVB OX TK PRESS A		SM			0	+50	PSIA	1			XXXXXXXXXXX
B S0051	P	S-II FUEL TK/S-IVB OX TK PRESS B		SM			0	+50	PSIA	1			XXXXXXXXXXX
B S0052	P	S-IVB FUEL PRESSURE A		SM			0	+50	PSIA	1			XXXXXXXXXXX
B S0053	P	S-IVB FUEL PRESSURE B		SM			0	+50	PSIA	1			XXXXXXXXXXX
B S0060	X	LIFT OFF SIGNAL A		L				L OFF	EVENT	1			XXXXXXXXXXX
B S0061	X	LIFT OFF SIGNAL B		L				L OFF	EVENT	1			XXXXXXXXXXX
B S0080	X	EDS ABORT REQUEST A	PCME	L				A REQ	EVENT	1	10	S/S	XXXXXXXXXXX
B S0081	X	EDS ABORT REQUEST B	PCME	L				A REQ	EVENT	1	10	S/S	XXXXXXXXXXX
B S0134	X	S-II SECOND PLANE SEPARATION A		L			SEP		EVENT	1			X XXXXXXXXX
B S0135	X	S-II SECOND PLANE SEPARATION B		L			SEP		EVENT	1			X XXXXXXXXX
C S0150	X	MASTER CAUTION-WARNING ON	PCME	L	*		WARN		EVENT	1	10	S/S	XXXXXXXXXXX
C S0160	X	NO AUTO ABORT A		L				NO AA	EVENT	1			XXXXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
L/V EMERGENCY DETECTION

MEAS. ID		MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	GSE	C A L	DATA RANGE LOW	HIGH	UNITS	C A T	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S TC000000111 U 7V1346789012 B
C S0161	X	NO AUTO ABORT B		L				NO	AA EVENT	1			XXXXXXXXXXX
L S0200	H	ANGLE OF ATTACK	PCM	SM			0	+5	VDC	1	10	S/S	XXXXXXXXXXX
C S0220	T	TEMP DOCKING PROBE CYLINDER	PCM				-100	+250	DEG F	2	1	S/S	X XXXXXXXX
C S0221	X	PROBE EXTENSION/RETRACTION SYS A		TB			NA	NA	NA	1			X XXXXXXXX
C S0222	X	PROBE EXTENSION/RETRACTION SYS B		TB			NA	NA	NA	1			X XXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
COMMUNICATIONS AND INSTRUMENTATION

MEAS. ID			MEASUREMENT DESCRIPTION	TM/TR	ACCESSIBILITY DISP	ACCESSIBILITY GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	RESPONSE RATE	RESPONSE UNIT	S/C EFFECTIVITY S21111111111+S TC000000111 U 7V1346789012 B
C	T0012	X	DSE TAPE MOTION MONITOR	PCMF				OFF	MOTION	EVENT	2	10	S/S	XXXXXXXXXXX
C	T0015	V	SIG COND POS SUPPLY VOLTS	PCM+				+0	+30	VDC	2	10	S/S	XXXXXXXXXXX
C	T0016	V	SIG COND NEG SUPPLY VOLTS	PCM+				+0	-30	VDC	2	10	S/S	XXXXXXXXXXX
C	T0017	V	SENSOR EXCITATION 5 VOLTS	PCM+				+0	+9	VDC	2	10	S/S	XXXXXXXXXXX
C	T0018	V	SENSOR EXCITATION 10 VOLTS	PCM+				+0	+15	VDC	2	10	S/S	XXXXXXXXXXX
C	T0050	H	DELTA V/RNG,VHF RNG CSM TO LM		SM			0	+237	N MI	1			XXXXXXX
C	T0120	X	PCM BIT RATE CHANGE 8 BIT	PCMD+							2	10	S/S	XXXXXXXXXXX
C	T0125	V	PCM HI LEVEL 85 PERCENT REF	PCM+				+0	+5.0	VDC	2	10	S/S	XXXXXXXXXXX
C	T0126	V	PCM HI LEVEL 15 PERCENT REF	PCM+				+0	+1.0	VDC	2	10	S/S	XXXXXXXXXXX
C	T0145	F	CTE TIME FROM LAUNCH 32 BIT	PCMD+							2	10	S/S	XXXXXXXXXXX
S	T0152	H	HIGH GAIN ANT POS PITCH		M			-90	+90	DEG	1			X XXXXXXXXX
S	T0153	H	HIGH GAIN ANT POS YAW		M			0	+360	DEG	1			X XXXXXXXXX
S	T0156	X	HIGH GAIN ANT GIMBAL LIMIT		L	*			LIMIT	EVENT	1			X XXXXXXXXX
C	T0262	V	UDL SYS VALIDITY SIGNAL 4-BIT	PCMD+							2	50	S/S	XXXXXXXXXXX
C	T0275	X	UDL CREW ALERT		L	*			ALERT	EVENT	1			XXXXXXXXXXX
C	T0340	X	PCM SYNC SOURCE EXT OR INT	PCME				INT	EXT	EVENT	2	10	S/S	XXXXXXXXXXX
C	T0620	E	S-BAND REC 1-2 AGC VOLTAGE	PCM+	M			-130	-50	DBM	1	10	S/S	XXXXXXXXXXX
C	T0640	F	S-BAND RCVR 1-2 STATIC PH ERRCR	PCM				-90	+90	KCPS	2	10	S/S	XXXXXXXXXXX
S	T0710	V	AGC SIGNAL-RRT		SM	A		0	+5	VDC	1			XXXXXXXXXXX
S	T0711	V	XMTR POWER OUTPUT-RRT		SM	A		+0	+5	VDC	1			XXXXXXXXXXX
S	T0712	X	FREQUENCY LOCKUP-RRT		SM	A			LCKUP	EVENT	1			XXXXXXXXXXX
S	T0820	K	PROTON COUNT RATE CHANNEL 1	PCM				+1	+100K	C/S	2	10	S/S	XXXXXXXXX
S	T0821	K	PROTON COUNT RATE CHANNEL 2	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0822	K	PROTON COUNT RATE CHANNEL 3	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0823	K	PROTON COUNT RATE CHANNEL 4	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0830	K	ALPHA COUNT RATE CHANNEL 1	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0831	K	ALPHA COUNT RATE CHANNEL 2	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0832	K	ALPHA COUNT RATE CHANNEL 3	PCM				+0.1	+10K	C/S	2	10	S/S	XXXXXXXXX
S	T0838	K	PROTON INTEGR COUNT RATE	PCM				+1	+100K	C/S	2	10	S/S	XXXXXXXXX
S	T0840	T	TEMP NUCLEAR PARTICLE DETECTOR	PCM				-65	+140	DEG F	2	1	S/S	XXXXXXXXX
S	T0841	T	TEMP NUCLEAR PARTICLE ANALYZER	PCM				-65	+140	DEG F	2	1	S/S	XXXXXXXXX
C	T1006	X	GROUND COMMAND TAPE PLAYBACK		TB				RUN	EVENT	1			XXXXXXXXXXX
C	T1015	X	GROUND COMMAND POWER AMP ON		TB			OFF	ON	EVENT	1			XXXXXXXXXXX

APPENDIX B

FLIGHT QUALIFICATION MEASUREMENT REQUIREMENTS

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

FQ

SUBSYSTEM
STRUCTURES

	MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211	T00	7V13
X	L A0011 A Y AXIS TOWER ACCEL	IUTM			-5.0	+5.0	G	4	XL380,YL0,ZL6		X	
X	L A0012 A Z AXIS TOWER ACCEL	IUTM			-5.0	+5.0	G	4	XL380,YL0,ZL0		X	
X	S A0125 A Y AXIS ACCEL SPS OXIDIZER TANK	TRFQ			-2.0	+2.0	G	4	TOP CL OXID SUMP TK		X	
X	S A0126 A Z AXIS ACCEL SPS OXIDIZER TANK	TRFQ			-2.0	+2.0	G	4	TOP CL OXID SUMP TK		X	
X	S A0127 A X AXIS ACCEL SM AFT BHD SECTOR IV	TRFQ			-2.0	+10.0	G	4	XS203,150 DEG,R70		X	
X	S A0128 A Y AXIS ACCEL SM AFT BHD SECTOR IV	TRFQ			-2.0	+2.0	G	4	XS203,150 DEG,R70		X	
X	S A0129 A Z AXIS ACCEL SM AFT BHD SECTOR IV	TRFQ			-2.0	+2.0	G	4	XS203,150 DEG,R70		X	
X	C A2529 D X AXIS VIB CM LEB KICKRING	TRFQ			-50	+50	G	4	XC42.6,YC-42,ZC33	X		
X	C A2530 D RADIAL VIB CM LEB KICKRING	TRFQ			-50	+50	G	4	XC42.6,YC-42,ZC33	X		
X	C A2531 D TANG VIB CM LEB KICKRING	TRFQ			-50	+50	G	4	XC42.6,YC-42,ZC33	X		
X	C A2540 D X AXIS VIB FWD BHD AT TUNNEL	TRFQ			-25	+25	G	4	XC80.75,YC0,ZC+16		X	
X	C A2543 D X AXIS VIB FWD BHD AT TUNNEL	TRFQ			-25	+25	G	4	XC80.75,YC0,ZC-16		X	
X	C A2546 D X AXIS VIB FWD BHD AT TUNNEL	TRFQ			-25	+25	G	4	XC80.75,YC+16,ZC0		X	
X	C A2549 D X AXIS VIB FWD BHD AT TUNNEL	TRFQ			-25	+25	G	4	XC80.75,YC-16,ZC0		X	
X	S A2800 D X AXIS VIB FC SUPPORT SHELF	TRFQ			-25	+25	G	4	XS307.25,130DEGR52	X		
X	S A2803 D X AXIS VIB SM H2 TANK SHELF	TRFQ			-25	+25	G	4	XS239.25,118DEGR61	X		
X	S A2806 D X AXIS VIB SM O2 TANK SHELF	TRFQ			-25	+25	G	4	XS281.25,141DEGR45	X		
X	S A2809 D X AXIS VIB SM HE PRESS PANEL	TRFQ			-50	+50	G	4	XS229,103 DEG R60	X		
X	S A2810 D RADIAL VIB SM HE PRESS PANEL	TRFQ			-50	+50	G	4	XS229,103 DEG R60	X		
X	S A2811 D TANG VIB SM HE PRESS PANEL	TRFQ			-50	+50	G	4	XS229,103 DEG R60	X		
X	S A2830 D X AXIS VIB HIGH GAIN ANT BOOM	TRFQ			-75	+75	G	4	AFT SIDE,OUTBD END		X	
X	S A2832 D TANG VIB HIGH GAIN ANT BOOM	TRFQ			-75	+75	G	4	AFT SIDE,OUTBD END		X	
X	S A2835 D X AXIS VIB FWD BHD RR/T BRK	TRFQ			-50	+50	G	4	XS355,50.5 DEG,R75	X		
X	S A2839 D RADIAL VIB RR/T RADOME	TRFQ			-75	+75	G	4	XS358.5,48 DEG,R76.5	X		
X	A A3042 A RADIAL ACCEL SLA INNER SHELL 1	TRFQ			-2.0	+2.0	G	4	XA584,0 DEG +Y		X	
X	A A3043 A RADIAL ACCEL SLA INNER SHELL 2	TRFQ			-5.0	+5.0	G	4	XA712,90 DEG		X	
X	A A3044 A RADIAL ACCEL SLA INNER SHELL 3	TRFQ			-2.0	+2.0	G	4	XA584,90 DEG +Z		X	
X	A A3045 A RADIAL ACCEL SLA INNER SHELL 4	TRFQ			-5.0	+5.0	G	4	XA584,135 DEG +Z		X	
X	A A3046 A RADIAL ACCEL SLA INNER SHELL 5	TRFQ			-2.0	+2.0	G	4	XA584,180 DEG -Y		X	
X	A A3047 A RADIAL ACCEL SLA INNER SHELL 6	TRFQ			-5.0	+5.0	G	4	XA584,225 DEG -Y		X	
X	A A3048 A RADIAL ACCEL SLA INNER SHELL 7	TRFQ			-2.0	+2.0	G	4	XA584,270 DEG -Z		X	
X	A A3049 A RADIAL ACCEL SLA INNER SHELL 8	TRFQ			-5.0	+5.0	G	4	XA670,90 DEG		X	
X	A A3280 S SLA LONG STRAIN 1 INNER SHL SURF	TRFQ			-5K	+5K	UI/IN	4	XA533,45 DEG		X	
X	A A3281 S SLA CIRC STRAIN 1 INNER SHL SURF	TRFQ			-5K	+5K	UI/IN	4	XA533,45 DEG		X	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

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SUBSYSTEM
STRUCTURES

		MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 T00 7V13
X	A	A3282	S SLA LONG STRAIN 2 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,45 DEG	X
X	A	A3283	S SLA CIRC STRAIN 2 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,45 DEG	X
X	A	A3284	S SLA LONG STRAIN 3 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,135 DEG	X
X	A	A3285	S SLA CIRC STRAIN 3 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,135 DEG	X
X	A	A3286	S SLA LONG STRAIN 4 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,135 DEG	X
X	A	A3287	S SLA CIRC STRAIN 4 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,135 DEG	X
X	A	A3288	S SLA LONG STRAIN 5 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,225 DEG	X
X	A	A3289	S SLA CIRC STRAIN 5 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,225 DEG	X
X	A	A3290	S SLA LONG STRAIN 6 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,225 DEG	X
X	A	A3291	S SLA CIRC STRAIN 6 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,225 DEG	X
X	A	A3292	S SLA LONG STRAIN 7 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,315 DEG	X
X	A	A3293	S SLA CIRC STRAIN 7 INNER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,315 DEG	X
X	A	A3294	S SLA LONG STRAIN 8 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,315 DEG	X
X	A	A3295	S SLA CIRC STRAIN 8 OUTER SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA533,315 DEG	X
X	A	A3296	S SLA LM ATTACH PT,CIRC IN SHL SURF	TRFQ		-5K	+5K	UI/IN	4	XA584,315 DEG	X
X	C	A4360	R FLUX AFT HS LOC 1	TRFQ		+0	+10	B/F/S	4	XC20,270 DEG	X
X	C	A4361	R FLUX AFT HS LOC 2	TRFQ		+0	+30	B/F/S	4	XC23,90 DEG	X
X	C	A4362	R FLUX AFT HS LOC 3	TRFQ		+0	+75	B/F/S	4	ZC0,YC0	X
X	C	A4363	R FLUX AFT HS LOC 4	TRFQ		+0	+100	B/F/S	4	ZC72,YC0	X
X	C	A4364	R FLUX AFT HS LOC 5	TRFQ		+0	+50	B/F/S	4	ZC-50,YC0	X
X	C	A4365	R FLUX AFT HS COMPRESSION PAD 2	TRFQ		+0	+150	B/F/S	4		X
X	C	A4366	R FLUX AFT HS COMPRESSION PAD 6	TRFQ		+0	++75	B/F/S	4		X
X	C	A4369	R FLUX CREW COMPARTMENT HS	TRFQ		+0	+10	B/F/S	4	XC78,180 DEG	X
X	C	A4370	R FLUX CREW COMPARTMENT HS	TRFQ		+0	+5	B/F/S	4	XC78,270 DEG	X
X	C	A4373	R FLUX FWD HS LOC 1	TRFQ		+0	+10	B/F/S	4	XC85,90 DEG	X
X	C	A4374	R FLUX FWD HS LOC 2	TRFQ		+0	+5	B/F/S	4	XC104,YC-2.5,ZC-8.5	X
X	C	A4375	R FLUX FWD HS LOC 3	TRFQ		+0	+5	B/F/S	4	XC104.5,ZC0,YC23	X
X	C	A4376	R FLUX FWD HS LOC 4	TRFQ		+0	+5	B/F/S	4	XC104.5,ZC23,YC0	X
X	C	A4377	R FLUX FWD HS LOC 5	TRFQ		+0	+5	B/F/S	4	XC104.5,ZC-23,YC0	X
X	C	A4380	P AFT HS STATIC PRESSURE LOC 1	TRFQ		+0	+0.5	PSIA	4	XC20,270 DEG	X
X	C	A4381	P AFT HS STATIC PRESSURE LOC 2	TRFQ		+0	+0.5	PSIA	4	XC23,90 DEG	X
X	C	A4382	P AFT HS STATIC PRESSURE LOC 3	TRFQ		+0	+5	PSIA	4	ZC0,YC0	X
X	C	A4383	P AFT HS STATIC PRESSURE LOC 4	TRFQ		+0	+5	PSIA	4	ZC72,YC0	X
X	C	A4384	P AFT HS STATIC PRESSURE LOC 5	TRFQ		+0	+2.5	PSIA	4	ZC-50,YC0	X

CSM MEASUREMENT REQUIREMENTS FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

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SUBSYSTEM
STRUCTURES

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 TOO 7V13
X C A4387 P	CREW COMPT HS STATIC PRESS,1-A	TRFQ		+0	+0.3	PSIA	4	XC78,180 DEG	X
X C A4389 P	CREW COMPT HS STATIC PRESS,2-A	TRFQ		+0	+0.3	PSIA	4	XC78,270 DEG	X
X C A4391 P	FWD HS STATIC PRESSURE 1	TRFQ		+0	+0.3	PSIA	4	XC85,90 DEG	X
X C A4392 P	FWD HS STATIC PRESSURE 2	TRFQ		+0	+0.3	PSIA	4	XC104,YC-2.5,ZC-8.5	X
X C A4395 T	TEMP AFT HS LOC 1	TRFQ		-150	+2000	DEG F	4	XC20,270 DEG,0.05IN	X
X C A4396 T	TEMP AFT HS LOC 1-A	TRFQ		-150	+1000	DEG F	4	XC20,270 DEG,0.2IN	X
X C A4397 T	TEMP AFT HS LOC 1 BL	TRFQ		-150	+600	DEG F	4	XC20,270 DEG,BL	X
X C A4398 T	TEMP AFT HS LOC 2	TRFQ		+32	+3000	DEG F	4	ZC0,YC0,0.05IN	X
X C A4399 T	TEMP AFT HS LOC 2-A	TRFQ		+32	+2500	DEG F	4	ZC0,YC0,0.2IN	X
X C A4400 T	TEMP AFT HS LOC 2-B	TRFQ		+32	+2000	DEG F	4	ZC0,YC0,0.4IN	X
X C A4401 T	TEMP AFT HS LOC 2 BL	TRFQ		+32	+600	DEG F	4	ZC0,YC0,BL	X
X C A4402 T	TEMP AFT HS LOC 3	TRFQ		+32	+3000	DEG F	4	ZC72,YC0,0.05IN	X
X C A4403 T	TEMP AFT HS LOC 3-A	TRFQ		+32	+2500	DEG F	4	ZC72,YC0,0.2IN	X
X C A4404 T	TEMP AFT HS LOC 3-B	TRFQ		+32	+2000	DEG F	4	ZC72,YC0,0.4IN	X
X C A4405 T	TEMP AFT HS LOC 3 BL	TRFQ		+32	+600	DEG F	4	ZC72,YC0,BONDLINE	X
X C A4406 T	TEMP AFT HS LOC 4	TRFQ		+32	+2500	DEG F	4	ZC-50,YC0,0.05IN	X
X C A4407 T	TEMP AFT HS LOC 4-A	TRFQ		+32	+2000	DEG F	4	ZC-50,YC0,0.2IN	X
X C A4408 T	TEMP AFT HS LOC 4-B	TRFQ		+32	+2000	DEG F	4	ZC-50,YC0,0.4IN	X
X C A4409 T	TEMP AFT HS LOC 4 BL	TRFQ		+32	+600	DEG F	4	ZC-50,YC0,BONDLINE	X
X C A4410 T	TEMP COMPRESSION PAD 2	TRFQ		+32	+3000	DEG F	4	0.05IN	X
X C A4411 T	TEMP COMPRESSION PAD 2	TRFQ		+32	+2500	DEG F	4	0.2IN	X
X C A4412 T	TEMP COMPRESSION PAD 2	TRFQ		+32	+2000	DEG F	4	0.4IN	X
X C A4413 T	TEMP COMPRESSION PAD 2,BL	TRFQ		+32	+600	DEG F	4	BONDLINE	X
X C A4416 T	TEMP CREW COMPT HS LOC 1	TRFQ		-150	+2500	DEG F	4	XC30,90 DEG,0.05IN	X
X C A4417 T	TEMP CREW COMPT HS LOC 1-A	TRFQ		-150	+2000	DEG F	4	XC30,90 DEG,0.2IN	X
X C A4418 T	TEMP CREW COMPT HS LOC 1-B	TRFQ		-150	+2000	DEG F	4	XC30,90 DEG,0.4IN	X
X C A4419 T	TEMP CREW COMPT HS LOC 1 BL	TRFQ		-150	+600	DEG F	4	XC30,90 DEG,BONDLINE	X
X C A4420 T	TEMP CREW COMPT HS LOC 2	TRFQ		-150	+2000	DEG F	4	XC78,180 DEG,0.05IN	X
X C A4421 T	TEMP CREW COMPT HS LOC 2-A	TRFQ		-150	+1000	DEG F	4	XC78,180 DEG,0.2IN	X
X C A4422 T	TEMP CREW COMPT HS LOC 2 BL	TRFQ		-150	+600	DEG F	4	XC78,180 DEG,BL	X
X C A4423 T	TEMP CREW COMPT HS LOC 3	TRFQ		-150	+2000	DEG F	4	XC78,270 DEG,0.05IN	X
X C A4424 T	TEMP CREW COMPT HS LOC 3-A	TRFQ		-150	+1000	DEG F	4	XC78,270 DEG,0.2IN	X
X C A4425 T	TEMP CREW COMPT HS LOC 3 BL	TRFQ		-150	+600	DEG F	4	XC78,270 DEG,BL	X
X C A4428 T	TEMP FWD HS LOC 1	TRFQ		-150	+2000	DEG F	4	XC85,90 DEG,0.05IN	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

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MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211	T00	7V13
X C A4429 T	TEMP FWD HS LOC 1-A	TRFQ		-150	+1500	DEG F	4	XC85,90 DEG,0.2IN		X	
X C A4430 T	TEMP FWD HS LOC 1-B	TRFQ		-150	+1000	DEG F	4	XC85,90 DEG,0.4IN		X	
X C A4431 T	TEMP FWD HS LOC 1 BL	TRFQ		-150	+600	DEG F	4	XC85,90 DEG,BL		X	
X C A4432 T	TEMP FWD HS LOC 2	TRFQ		-150	+2000	DEG F	4	XC104,YC-2.5,ZC-8.5		X	
X C A4433 T	TEMP FWD HS LOC 2-A	TRFQ		-150	+1000	DEG F	4	XC104.5,ZC0,YC0,0.2		X	
X C A4434 T	TEMP FWD HS LOC 2 BL	TRFQ		-150	+600	DEG F	4	XC104,YC-2.5,ZC-8.5		X	
X C A4435 T	TEMP FWD HS BONDLINE	TRFQ		-150	+600	DEG F	4	XC104.5,ZC23,YC0		X	
X C A4436 T	TEMP AFT HS COMPRESSION PAD 6	TRFQ		+32	+600	DEG F	4			X	
X C A4437 T	TEMP CREW COMPT HS INNER SURF	TRFQ		-150	+250	DEG F	4	XC41,45 DEG		X	
X C A4438 T	TEMP STRUCT OPP CREW COMPT HS	TRFQ		-150	+250	DEG F	4	XC41,54 DEG		X	
X C A4439 T	TEMP CREW COMPT HS ADJ FRAME 4	TRFQ		-150	+250	DEG F	4	XC41,54 DEG		X	
X C A4440 T	TEMP CREW COMPT HS ADJ FRAME 9	TRFQ		-150	+250	DEG F	4	XC41,126 DEG		X	
X C A4441 T	TEMP STRUCT WEB OPP CR COMPT HS	TRFQ		-150	+250	DEG F	4	XC41,126 DEG		X	
X C A4442 T	TEMP CREW COMPT HS BET FRAMES	TRFQ		-150	+250	DEG F	4	XC41,135 DEG		X	
X C A4443 T	TEMP CREW COMPT HS ADJ FRAME 19	TRFQ		-150	+250	DEG F	4	XC41,278 DEG		X	
X C A4444 T	TEMP STRUCT OPP CREW COMPT HS	TRFQ		-150	+250	DEG F	4	XC41,278 DEG		X	
X C A4445 T	TEMP CREW COMPT HS BET FRAMES	TRFQ		-150	+250	DEG F	4	XC41,286 DEG		X	
X C A4446 T	TEMP CREW COMPT HS ADJ RING,1-A	TRFQ		-150	+250	DEG F	4	XC43,0 DEG		X	
X C A4447 T	TEMP CREW COMPT HS RING SURF,1-A	TRFQ		-150	+250	DEG F	4	XC43,0 DEG		X	
X C A4448 T	TEMP CREW COMPT HS ADJ RING,1-B	TRFQ		-150	+250	DEG F	4	XC43,90 DEG		X	
X C A4449 T	TEMP CREW COMPT HS RING SURF,1-B	TRFQ		-150	+250	DEG F	4	XC43,90 DEG		X	
X C A4450 T	TEMP CREW COMPT HS ADJ RING,1-C	TRFQ		-150	+250	DEG F	4	XC43,270 DEG		X	
X C A4451 T	TEMP CREW COMPT HS RING SURF,1-C	TRFQ		-150	+250	DEG F	4	XC43,270 DEG		X	
X C A4452 T	TEMP AFT HS BOLT PLUG	TRFQ		-150	+250	DEG F	4	43 DEG		X	
X C A4453 T	TEMP AFT HS INNER SURF	TRFQ		-150	+250	DEG F	4	ZC0,YC0		X	
X C A4454 T	TEMP CREW COMPT HS ADJ STGR 12B	TRFQ		-150	+250	DEG F	4	XC49,237.7 DEG		X	
X C A4455 T	TEMP STRINGER 12B SURF	TRFQ		-150	+250	DEG F	4	XC49,237.7 DEG		X	
X C A4456 T	TEMP CREW COMPT HS BET STRINGERS	TRFQ		-150	+250	DEG F	4	XC49,242 DEG		X	
X C A4457 T	TEMP CREW COMPT HS ADJ STGR 15	TRFQ		-150	+250	DEG F	4	XC60,358.3 DEG		X	
X C A4458 T	TEMP STRINGER 15 SURF	TRFQ		-150	+250	DEG F	4	XC60,35.3 DEG		X	
X C A4459 T	TEMP CREW COMPT HS BET STRINGERS	TRFQ		-150	+250	DEG F	4	XC60,8 DEG		X	
X C A4460 T	TEMP FWD HS ADJ TO GUSSET PLATE	TRFQ		-150	+250	DEG F	4	XC94,222.7 DEG		X	
X C A4461 T	TEMP FWD HS OPP HS ON GUSSET PL	TRFQ		-150	+250	DEG F	4	XC94,222.7 DEG		X	
X C A4462 T	TEMP FWD HS BETWEEN GUSSET PL	TRFQ		-150	+250	DEG F	4	XC94,180 DEG		X	

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

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SUBSYSTEM
STRUCTURES

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211	T00	7V13
X C A4463 T	TEMP C-BAND ANTENNA CONNECTOR	TRFQ		-150	+600	DEG F	4	XC59,76 DEG			X
X C A4464 T	TEMP S-BAND ANTENNA HEAT SINK	TRFQ		-150	+600	DEG F	4	XC20.76,135 DEG			X
X C A4465 T	TEMP S-BAND ANTENNA HEAT SINK	TRFQ		-150	+600	DEG F	4	XC20.76,225 DEG			X
X C A4466 T	TEMP AIR VENT HEAT SINK	TRFQ		-150	+2000	DEG F	4				X
X C A4467 T	TEMP FWD HATCH INNER SKIN	TRFQ		-150	+600	DEG F	4				X
X C A4468 T	TEMP FWD HATCH LATCH MECH	TRFQ		-150	+600	DEG F	4				X
X C A4469 T	TEMP FWD HATCH ADJ LATCH MECH	TRFQ		-150	+600	DEG F	4				X
X C A4470 T	TEMP LEM-CM UMB WIRE BUNDLE	TRFQ		-150	+600	DEG F	4				X
X C A4471 T	TEMP LEM-CM UMB HARDLINE	TRFQ		-150	+600	DEG F	4				X
X C A4473 T	TEMP URINE DUMP TUBE BONDLINE	TRFQ		-150	+600	DEG F	4				X
X S A4480 T	TEMP BEAM CAP 1	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4481 T	TEMP BEAM CAP 2	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4482 T	TEMP BEAM CAP 3	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4483 T	TEMP BEAM CAP 4	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4484 T	TEMP BEAM CAP 5	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4485 T	TEMP BEAM CAP 6	FQ+TR		-200	+250	DEG F	4	XS200			X
X S A4486 T	TEMP BEAM CAP 1	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4487 T	TEMP BEAM CAP 2	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4488 T	TEMP BEAM CAP 3	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4489 T	TEMP BEAM CAP 4	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4490 T	TEMP BEAM CAP 5	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4491 T	TEMP BEAM CAP 6	FQ+TR		-200	+250	DEG F	4	XS280			X
X S A4492 T	TEMP BEAM CAP 1	FQ+TR		-200	+250	DEG F	4	XS355			X
X S A4493 T	TEMP BEAM CAP 4	FQ+TR		-200	+250	DEG F	4	XS355			X
X S A4494 T	TEMP CENTER OUTER SHELL BAY 4	FQ+TR		-200	+250	DEG F	4	XS250			X
X S A4495 T	TEMP CENTER OUTER SHELL BAY 4A	FQ+TR		-200	+250	DEG F	4	XS300,			X
X S A4496 T	TEMP UPPER SURF SPS HE TANK 1	FQ+TR		+0	+100	DEG F	4				X
X S A4497 T	TEMP LOWER SURF SPS HE TANK 2	FQ+TR		+0	+100	DEG F	4				X
X S A4498 T	TEMP RCS OUTLET OX TANK QUAD A	FQ+TR		+0	+120	DEG F	4				X
X S A4499 T	TEMP RCS OUTLET OX TANK QUAD B	FQ+TR		+0	+120	DEG F	4				X
X S A4500 T	TEMP RCS OUTLET OX TANK QUAD C	FQ+TR		+0	+120	DEG F	4				X
X S A4501 T	TEMP RCS OUTLET OX TANK QUAD D	FQ+TR		+0	+120	DEG F	4				X
X S A4502 T	TEMP RCS OUTLET FUEL TANK QUAD A	FQ+TR		+0	+120	DEG F	4				X
X S A4503 T	TEMP RCS OUTLET FUEL TANK QUAD B	FQ+TR		+0	+120	DEG F	4				X

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

FQ

SUBSYSTEM
STRUCTURES

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 TOO 7V13
X S A4504	T TEMP RCS OUTLET FUEL TANK QUAD C	FQ+TR	+0	+120	DEG F	4		X
X S A4505	T TEMP RCS OUTLET FUEL TANK QUAD D	FQ+TR	+0	+120	DEG F	4		X
X A A8181	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA750,195 DEG	X
X A A8182	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA750,195 DEG	X
X A A8183	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA670,187 DEG	X
X A A8184	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA670,187 DEG	X
X A A8185	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA540,197 DEG	X
X A A8186	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA540,197 DEG	X
X A A8187	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA750,15 DEG	X
X A A8188	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA750,15 DEG	X
X A A8189	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA670,7 DEG	X
X A A8190	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA670,7 DEG	X
X A A8191	T TEMP SLA SKIN OUTER SURFACE	IUTM	-100	+600	DEG F	4	XA540,6 DEG	X
X A A8192	T TEMP SLA SKIN INNER SURFACE	IUTM	-100	+600	DEG F	4	XA540,6 DEG	X
X A A8198	X NOSE CONE-SLA PHYS SEP MONITOR 1	IUTM	SEP		EVENT	4	XA832.00,305 DEG	X
X A A8199	X NOSE CONE-SLA PHYS SEP MONITOR 2	IUTM	SEP		EVENT	4	XA832.00,125 DEG	X
X A A8200	X SLA DEPLOYMENT PHYSICAL MON 1	IUTM		DEPLOY	EVENT	4	SLA-XDUCER IN SERIES	X
X A A8201	X SLA DEPLOYMENT PHYSICAL MON 2	IUTM		DEPLOY	EVENT	4	SLA-XDUCER IN SERIES	X
X A A8202	X SLA DEPLOYMENT PHYSICAL MON 3	IUTM		DEPLOY	EVENT	4	SLA-XDUCER IN SERIES	X
X A A8203	X SLA DEPLOYMENT PHYSICAL MON 4	IUTM		DEPLOY	EVENT	4	SLA-XDUCER IN SERIES	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

FQ

SUBSYSTEM
MASTER EVENTS SEQUENCE CONTROLLER

MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 T00 7V13
X A D0600 X	NOSE CONE JETTISON RELAY CLOSE A	IUTM		OPEN	CLOSE	EVENT	4	SLA	X
X A D0601 X	NOSE CONE JETTISON RELAY CLOSE B	IUTM		OPEN	CLOSE	EVENT	4	SLA	X
X A D0602 X	LM-SLA SEPARATION RELAY CLOSE A	IUTM		OPEN	CLOSE	EVENT	4	SLA	X
X A D0603 X	LM-SLA SEPARATION RELAY CLOSE B	IUTM		OPEN	CLOSE	EVENT	4	SLA	X
X A D0610 X	SLA PANELS DEPLOY RELAY CLOSE A	IUTM		OPEN	CLOSE	EVENT	4	SLA	X
X A D0611 X	SLA PANELS DEPLOY RELAY CLOSE B	IUTM		OPEN	CLOSE	EVENT	4	SLA	X

FQ

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
ENVIRONMENTAL CONTROL

	MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211	T00	TV13
X	C F0162 T	TEMP PRI COLDPLATE OUTLET	FQ		+50	+150	DEG F	4				X
X	C F0163 T	TEMP CABIN HEAT EXCH AIR OUT	FQ		+40	+125	DEG F	4				X
X	C F0184 T	TEMP CO2 ABSORBER OUTLET	FQ		+90	+200	DEG F	4				X
X	C F0245 T	TEMP O2 REGULATOR INLET	FQ		-50	+150	DEG F	4				X
X	C F0411 T	TEMP SUIT HX PRI GLYCOL OUTLET	FQ		+35	+100	DEG F	4				X
X	C F0545 T	TEMP GLYCOL PRI COLDPLATE INLET	FQ		+50	+150	DEG F	4				X
X	S F0815 T	TEMP OUT PRI RAD PANEL BAY 2-3	FQ		-60	+100	DEG F	4				X
X	S F0815 T	TEMP OUT PRI RAD PANEL BAY 5-6	FQ		-60	+100	DEG F	4				X

SUBSYSTEM
GUIDANCE AND NAVIGATION

		MEAS. ID		MEASUREMENT DESCRIPTION	TM/TR GSE	DATA RANGE LOW	HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 T00 7V13
X	C	G1211	V	OPTX 28V .8KC 1 PCT 0 DEG RMS	FQ	0	31.1	VRMS	B		X
X	C	G2120	C	IG TORQUE MOTOR CURRENT	TRFQ	-0.5	+0.5	AMP	B		X
X	C	G2122	V	IG 1X RESOLVER OUTPUT SIN	TRFQ				4		X
X	C	G2150	C	MG TORQUE MOTOR CURRENT	TRFQ	-0.5	+0.5	AMP	B		X
X	C	G2152	V	MG 1X RESOLVER OUTPUT SIN	TRFQ				4		X
X	C	G2180	C	OG TORQUE MOTOR CURRENT	TRFQ	-0.9	+0.9	AMP	B		X
X	C	G2182	V	OG 1X RESOLVER OUTPUT SIN	TRFQ				4		X
X	C	G2219	V	PITCH ATT ERROR-CDU DAC OUT	FQ	-16.9	+16.9	DEG	B		X
X	C	G2249	V	YAW ATT ERROR-CDU DAC OUT	FQ	-16.9	+16.9	DEG	B		X
X	C	G2279	V	ROLL ATT ERROR-CDU DAC OUT	FQ	-16.9	+16.9	DEG	B		X
X	C	G2301	T	IRIG TEMPERATURE	FQ	+123	+143	DEG F	B		X
X	C	G2302	X	IMU HEATER CURRENT	FQ	ON	OFF	EVENT	B		X
X	C	G2303	X	IMU BLOWER CURRENT	FQ	ON	OFF	EVENT	B		X
X	C	G3011	V	TRUNNION CDU FINE ERROR	FQ	-1.2	+1.2	VRMS	B		X
X	C	G3021	V	SHAFT CDU FINE ERROR	FQ	-1.2	+1.2	VRMS	B		X
X	C	G3140	V	SXT SHAFT TACHOMETER OUTPUT	FQ	-0.5	+0.5	VRMS	B		X
X	C	G3150	V	SXT TRUNNION TACHOMETER OUTPUT	FQ	-0.5	+0.5	VRMS	B		X
X	C	G3160	V	SCT SHAFT TACHOMETER OUTPUT	FQ	-5.0	+5.0	VRMS	B		X
X	C	G3170	V	SCT TRUNNION TACHOMETER OUTPUT	FQ	-5.0	+5.0	VRMS	B		X
X	C	G6001	D	VIBRATION NAVIGATION BASE ROLL	TRFQ				4		X
X	C	G6002	D	VIBRATION NAVIGATION BASE PITCH	TRFQ				4		X
X	C	G6003	D	VIBRATION NAVIGATION BASE YAW	TRFQ				4		X

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CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
SERVICE PROPULSION

	MEAS. ID	MEASUREMENT DESCRIPTION	TM/TR	GSE	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	LOCATION	S/C EFFECTIVITY S211 T00 7V13
X	S P0050	T TEMP ENG NOZZLE OUTER SKIN 1	FQ		-260	+2500	DEG F	4		X
X	S P0617	T TEMP PU VALVE BODY IN	FQ+		-100	+200	DEG F	4	BODY NEAR BRKT 10 S/S	X
X	S P0618	T TEMP PU VALVE BODY OUT	FQ		-100	+200	DEG F	4	BODY NEAR BKT	X
X	S P2012	T TEMP SM HE PRESSURIZATION PANEL	FQ		-100	+200	DEG F	4		X
X	S P2055	T TEMP GIMBAL ACTUATOR CASE PITCH	FQ		-100	+200	DEG F	4		X
X	S P2095	T TEMP OX LINE AT ENG INTERFACE	FQ		-100	+200	DEG F	4		X
X	S P2096	T TEMP ENG OXIDIZER FEED LINE	FQ		-100	+200	DEG F	4		X

APPENDIX C
ACE-S/C MEASUREMENT REQUIREMENTS

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CA1812T	TEMP SIDE HS SURF LOC 1	250	+ 300	DEGF	1	X------
CA1813T	TEMP SIDE HS SURF LOC 2	250	+ 300	DEGF	1	X------
CA1814T	TEMP SIDE HS SURF LOC 3	250	+ 300	DEGF	1	X------
CA1815T	TEMP SIDE HS SURF LOC 4	250	+ 300	DEGF	1	X------
CA4050H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4051H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4052H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4053H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4054H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4055H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4056H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4057H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4058H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4059H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4060H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4061H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4062H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4063H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4064H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4068H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4069H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4070H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4071H	DISP SIDE HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4072H	DISP SIDE HS/INNER STRUCT HORIZ	- .25	+ .25	IN	1	X------
CA4073H	DISP SIDE HS/INNER STRUCT TANG	- .25	+ .25	IN	1	X------
CA4080H	DISP FWD HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4081H	DISP FWD HS/INNER STRUCT HRZ	- .25	+ .25	IN	1	X------
CA4082H	DISP FWD HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4083H	DISP FWD HS/INNER STRUCT HRZ	- .25	+ .25	IN	1	X------
CA4084H	DISP FWD HS/INNER STRUCT VERT	- .25	+ .25	IN	1	X------
CA4085H	DISP FWD HS/INNER STRUCT HRZ	- .25	+ .25	IN	1	X------
SA4510T	TEMP RCS QUAD C SHELL OUTER SURF	- 250	+ 300	DEGF	1	X------
SA4511T	TEMP RCS QUAD A SHELL OUTER SURF	- 250	+ 300	DEGF	1	X------
SA4512T	TEMP RCS QUAD B SHELL OUTER SURF	- 200	+ 250	DEGF	1	X------
SA4513T	TEMP BAY 4 SHL OUT SURF OP FC 3	- 250	+ 300	DEGF	1	X------
SA4514T	TEMP SHL BAY 3 BET RCS PNL-ECS RAD	- 250	+ 300	DEGF	1	X------
SA4515T	TEMP SHELL BAY 5 NEAR BEAM 5	- 250	+ 300	DEGF	1	X------
SA4516T	TEMP SHELL BAY 6 NEAR BEAM 5	- 300	+ 300	DEGF	1	X------
SA4517T	TEMP SHL BAY 6 BET RCS PNL-ECS RAD	- 300	+ 300	DEGF	1	X------
SA4518T	TEMP SHL BAY 2 BET RCS PNL-ECS RAD	- 250	+ 300	DEGF	1	X------
SA4519T	TEMP SHL BAY 2 NEAR BEAM 2	- 200	+ 250	DEGF	1	X------
SA4520T	TEMP SHL BAY 3 BET ECS RAD-AFT BND	- 200	+ 250	DEGF	1	X------
SA4521T	TEMP SHL BAY 5 BET ECS RAD-AFT BND	- 200	+ 250	DEGF	1	X------
SA4522T	TEMP SHL BAY 6 BET ECS RAD-AFT BND	- 200	+ 250	DEGF	1	X------
SA4523T	TEMP SHL BAY 2 BET ECS RAD-AFT BND	- 200	+ 250	DEGF	1	X------
SA4524T	TEMP SHL BAY 3 CENTER ECS RAD	- 200	+ 250	DEGF	1	X------
SA4525T	TEMP SHL BAY 5 CENTER ECS RAD	- 200	+ 250	DEGF	1	X------
SA4526T	TEMP SHL BAY 6 CENTER ECS RAD	- 200	+ 250	DEGF	1	X------
SA4527T	TEMP SHL BAY 2 CENTER ECS RAD	- 200	+ 250	DEGF	1	X------
SA4528T	TEMP SHL BAY 5 NEAR BEAM 5	- 200	+ 250	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
SA4529T	TEMP SHL BAY 2 NEAR BEAM 2	- 250	+ 300	DEGF	1	X------	
SA4530T	TEMP QUAD D RCS FUEL TK SKIN IN	- 200	+ 250	DEGF	1	X------	
SA4531T	TEMP QUAD D RCS FUEL TK SKIN OUT	- 200	+ 250	DEGF	1	X------	
SA4532T	TEMP QUAD D RCS OX TK SKIN IN	- 200	+ 250	DEGF	1	X------	
SA4533T	TEMP QUAD D RCS OX TK SKIN OUT	- 200	+ 250	DEGF	1	X------	
SA4534T	TEMP QUAD D RCS SHELL OUTER SURF	- 250	+ 300	DEGF	1	X------	
SA4535T	TEMP QUAD D RCS SHELL OUTER SURF	- 250	+ 300	DEGF	1	X------	
SA4536T	TEMP QUAD D RCS INNER PNL INSUL	- 200	+ 250	DEGF	1	X------	
SA4537T	TEMP QUAD D RCS INNER PNL INSUL	- 200	+ 250	DEGF	1	X------	
SA4538T	TEMP FUEL SUMP TANK SKIN	0	+ 250	DEGF	1	X------	
SA4539T	TEMP F SUMP TK SKIN OP RCS OX TK	0	+ 250	DEGF	1	X------	
SA4540T	TEMP F SUMP TK SKIN OP RCS PANEL	0	+ 250	DEGF	1	X------	
SA4541T	TEMP F SUMP TK SKIN OP RCS OX TK	0	+ 250	DEGF	1	X------	
SA4542T	TEMP F SUMP TK SKIN OP RCS PANEL	0	+ 250	DEGF	1	X------	
CA4543T	TEMP CREW COMPT HS ABLATOR SURF	- 200	+ 250	DEGF	1	X------	
GA5200X	LM DOCK RING FINAL SEP A GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5201X	LM DOCK RING FINAL SEP A TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5202X	LM DOCK RING FINAL SEP B GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5203X	LM DOCK RING FINAL SEP B TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5204X	LM PROBE RETRACT 1 INIT A GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5205X	LM PROBE RETRACT 1 INIT A TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5206X	LM PROBE RETRACT 1 INIT B GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5207X	LM PROBE RETRACT 1 INIT B TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5208X	LM PROBE RETRACT 2 INIT A GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5209X	LM PROBE RETRACT 2 INIT A TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5210X	LM PROBE RETRACT 2 INIT B GO	NORM	GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5211X	LM PROBE RETRACT 2 INIT B TRANS	NORM	NO-GO	EV	1	-X-X-X-	SC104 + SUBS, DNY SC103 + SUBS
GA5212X	+Z LM SLA LEG SEP INIT A GO	NORM	GO	EV	1	---X-X-	
GA5213X	+Z LM SLA LEG SEP INIT A TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5214X	+Z LM SLA LEG SEP INIT B GO	NORM	GO	EV	1	---X-X-	
GA5215X	+Z LM SLA LEG SEP INIT B TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5216X	+Y LM SLA LEG SEP INIT A GO	NORM	GO	EV	1	---X-X-	
GA5217X	+Y LM SLA LEG SEP INIT A TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5218X	+Y LM SLA LEG SEP INIT B GO	NORM	GO	EV	1	---X-X-	
GA5219X	+Y LM SLA LEG SEP INIT B TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5220X	-Z LM SLA LEG SEP INIT A GO	NORM	GO	EV	1	---X-X-	
GA5221X	-Z LM SLA LEG SEP INIT A TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5222X	-Z LM SLA LEG SEP INIT B GO	NORM	GO	EV	1	---X-X-	
GA5223X	-Z LM SLA LEG SEP INIT B TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5224X	-Y LM SLA LEG SEP INIT A GO	NORM	GO	EV	1	---X-X-	
GA5225X	-Y LM SLA LEG SEP INIT A TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5226X	-Y LM SLA LEG SEP INIT B GO	NORM	GO	EV	1	---X-X-	
GA5227X	-Y LM SLA LEG SEP INIT B TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5228X	LM/SLA GUILLOTINE INIT A GO	NORM	GO	EV	1	---X-X-	
GA5229X	LM/SLA GUILLOTINE INIT A TRANS	NORM	NO-GO	EV	1	---X-X-	
GA5230X	LM/SLA GUILLOTINE INIT B GO	NORM	GO	EV	1	---X-X-	
GA5231X	LM/SLA GUILLOTINE INIT B TRANS	NORM	NO-GO	EV	1	---X-X-	
CA6430T	TEMP DOCK PROBE CYLINDER CELLAR	- 250	+ 300	DEGF	1	X------	
CA6431T	TEMP OUT SURF FWD ABLATOR HATCH	- 250	+ 300	DEGF	1	X------	
CA6432T	TEMP DOCK PROBE ATTENUATOR A	- 250	+ 300	DEGF	1	X------	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMNMC SN3LSSO CY4 SO
CA6433T	TEMP DOCK PROBE ATTENUATOR B	- 250	+ 300	DEGF	1	X------
CA6434T	TEMP DOCK PROBE ATTENUATOR C	- 250	+ 300	DEGF	1	X------
CA6435T	TEMP DOCK RING WEB LOC 1	- 250	+ 300	DEGF	1	X------
CA6436T	TEMP DOCK RING WEB LOC 2	- 250	+ 300	DEGF	1	X------
CA6437T	TEMP DOCK RING WEB LOC 3	- 250	+ 300	DEGF	1	X------
CA6438T	TEMP DOCK RING WEB LOC 4	- 250	+ 300	DEGF	1	X------
CA6439T	TEMP DOCK PROBE SUPPORT BEAM 1	- 250	+ 300	DEGF	1	X------
CA6440T	TEMP DOCK PROBE SUPPORT BEAM 2	- 250	+ 300	DEGF	1	X------
CA6441T	TEMP DOCK PROBE SUPPORT BEAM 3	- 250	+ 300	DEGF	1	X------
CA6442T	TEMP DOCK PROBE PITCH CONT BM A	- 250	+ 300	DEGF	1	X------
CA6443T	TEMP DOCK PROBE PITCH CONT BM B	- 250	+ 300	DEGF	1	X------
CA6444T	TEMP DOCK PROBE PITCH CONT BM C	- 250	+ 300	DEGF	1	X------
CA6446T	TEMP DOCK PROBE PRESSURE SYS	- 250	+ 300	DEGF	1	X------
SA7002T	TEMP AFT BULKHD SECT 1 IN	- 250	+ 250	DEGF	1	X------
SA7004T	TEMP AFT BULKHD SECT 3 IN	- 250	+ 250	DEGF	1	X------
SA7005T	TEMP AFT BULKHD SECT 4 IN	- 250	+ 250	DEGF	1	X------
SA7007T	TEMP AFT BULKHD SECT 5 IN	- 250	+ 250	DEGF	1	X------
SA7008T	TEMP AFT BULKHD SECT 6 IN	- 250	+ 250	DEGF	1	X------
SA7010T	TEMP FWD BULKHD SECT 1 IN	- 200	+ 200	DEGF	1	X------
SA7013T	TEMP FWD BULKHD SECT 4 IN	- 200	+ 200	DEGF	1	X------
SA7016T	TEMP FWD BULKHD SECT 6 IN	- 200	+ 200	DEGF	1	X------
SA7044T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7045T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7046T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7047T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7048T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7049T	TEMP SECT 1 BEAM 1	- 200	+ 200	DEGF	1	X------
SA7052T	TEMP SECT 1 OUT SHELL INSUL 1	- 100	+ 150	DEGF	1	X------
SA7053T	TEMP SECT 1 OUT SHELL INSUL 2	- 100	+ 150	DEGF	1	X------
SA7054T	TEMP SECT 1 OUT SHELL INSUL 3	- 100	+ 150	DEGF	1	X------
SA7056T	TEMP SECT 1 OUT SHELL OUT SURF 2	- 300	+ 300	DEGF	1	X------
SA7057T	TEMP SECT 1 OUT SHELL OUT SURF 3	- 300	+ 300	DEGF	1	X------
SA7059T	TEMP SECT 1 OUT SHELL OUT SURF 4	- 300	+ 300	DEGF	1	X------
SA7065T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7066T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7067T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7068T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7069T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7070T	TEMP SECT 2 BEAM 2	- 200	+ 200	DEGF	1	X------
SA7081T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7082T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7083T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7084T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7085T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7086T	TEMP SECT 3 BEAM 3	- 200	+ 200	DEGF	1	X------
SA7093T	TEMP SECT 3 OUT SHL OUT SURF 2	- 300	+ 300	DEGF	1	X------
SA7094T	TEMP SECT 3 OUT SHL OUT SURF 3	- 300	+ 300	DEGF	1	X------
SA7096T	TEMP SECT 3 OUT SHL OUT SURF 4	- 300	+ 300	DEGF	1	X------
SA7100T	TEMP SECT 4 BEAM 4	- 200	+ 200	DEGF	1	X------
SA7101T	TEMP SECT 4 BEAM 4	- 200	+ 200	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
SA7102T	TEMP SECT 4 BEAM 4	- 200	+ 200	DEGF	1	X------
SA7104T	TEMP SECT 4 OUTER SHELL INSUL	- 100	+ 150	DEGF	1	X------
SA7105T	TEMP SECT 4 OUTER SHELL INSUL	- 100	+ 150	DEGF	1	X------
SA7121T	TEMP SECT 5 BEAM 5	- 200	+ 200	DEGF	1	X------
SA7122T	TEMP SECT 5 BEAM 5	- 200	+ 200	DEGF	1	X------
SA7123T	TEMP SECT 5 BEAM 5	- 200	+ 200	DEGF	1	X------
SA7130T	TEMP SECT 5 OUT SHL OUT SURF 2	- 300	+ 300	DEGF	1	X------
SA7131T	TEMP SECT 5 OUT SHL OUT SURF 3	- 300	+ 300	DEGF	1	X------
SA7134T	TEMP FWD BHD PUGS CONTROL BOX	- 100	+ 200	DEGF	1	X------
SA7137T	TEMP SECT 6 BEAM 6	- 200	+ 200	DEGF	1	X------
SA7138T	TEMP SECT 6 BEAM 6	- 200	+ 200	DEGF	1	X------
SA7139T	TEMP SECT 6 BEAM 6	- 200	+ 200	DEGF	1	X------
SA7141T	TEMP OX SUMP TANK INSUL	- 100	+ 150	DEGF	1	X------
SA7142T	TEMP OX STORAGE TANK INSUL	- 100	+ 150	DEGF	1	X------
SA7143T	TEMP OX STORAGE TANK INSUL	- 100	+ 150	DEGF	1	X------
SA7144T	TEMP FUEL SUMP TANK INSUL	- 100	+ 150	DEGF	1	X------
SA7145T	TEMP FUEL STORAGE TANK INSUL	- 100	+ 150	DEGF	1	X------
SA7146T	TEMP AFT HS INSUL IN SURF	- 100	+ 200	DEGF	1	X------
SA7147T	TEMP AFT HS INSUL IN SURF	- 100	+ 200	DEGF	1	X------
SA7149T	TEMP SECT 6 OUT SHL OUT SURF 4	- 300	+ 300	DEGF	1	X------
SA7150T	TEMP OX SUMP TANK SURF LOC 1	- 50	+ 150	DEGF	1	X------
SA7152T	TEMP FUEL SUMP TANK SURF	- 50	+ 150	DEGF	1	X------
SA7160T	TEMP FUEL SUMP TANK SURF	- 50	+ 150	DEGF	1	X------
SA7166T	TEMP FUEL SUMP TANK SURF	- 50	+ 150	DEGF	1	X------
SA7176T	TEMP OX STORAGE TANK SURF	- 50	+ 150	DEGF	1	X------
SA7178T	TEMP FUEL STORAGE TANK SURF	- 50	+ 150	DEGF	1	X------
SA7180T	TEMP OX STORAGE TANK SURF	- 50	+ 150	DEGF	1	X------
SA7182T	TEMP OX STORAGE TANK SURF	- 50	+ 150	DEGF	1	X------
SA7263T	TEMP OX SUMP TANK SUPPORT	- 100	+ 200	DEGF	1	X------
SA7264T	TEMP OX SUMP TANK SUPPORT	- 100	+ 200	DEGF	1	X------
SA7271T	TEMP FUEL SUMP TANK SUPPORT	- 100	+ 200	DEGF	1	X------
SA7272T	TEMP FUEL SUMP TANK SUPPORT	- 100	+ 200	DEGF	1	X------
CA7330T	TEMP BELLOWS SEAL SXT S/C SIDE	- 250	+ 300	DEGF	1	X------
CA7354T	TEMP DROGUE CHUTE SYSTEM SURFACE	- 100	+ 200	DEGF	1	X------
CA7356T	TEMP PILOT CHUTE SYSTEM	- 100	+ 200	DEGF	1	X------
CA7366T	TEMP STRINGER 2	- 250	+ 300	DEGF	1	X------
CA7367T	TEMP STRINGER 2	- 250	+ 300	DEGF	1	X------
CA7374T	TEMP STRINGER 5	- 250	+ 300	DEGF	1	X------
CA7375T	TEMP STRINGER 5	- 250	+ 300	DEGF	1	X------
CA7408T	TEMP STL HONEYCOMB IN SURF LOC 1	- 250	+ 300	DEGF	1	X------
CA7410T	TEMP STL HONEYCOMB IN SURF LOC 3	- 250	+ 300	DEGF	1	X------
CA7411T	TEMP STL HONEYCOMB IN SURF LOC 4	- 250	+ 300	DEGF	1	X------
CA7415T	TEMP STL HONEYCOMB IN SURF LOC 8	- 250	+ 300	DEGF	1	X------
CA7419T	TEMP STL HNYCMB IN SURF LOC 12	- 250	+ 300	DEGF	1	X------
CA7421T	TEMP STL HNYCMB IN SURF LOC 14	- 250	+ 300	DEGF	1	X------
CA7422T	TEMP STL HNYCMB IN SURF LOC 15	- 250	+ 300	DEGF	1	X------
CA7423T	TEMP STL HNYCMB IN SURF LOC 16	- 250	+ 300	DEGF	1	X------
CA7426T	TEMP STL HNYCMB IN SURF LOC 19	- 250	+ 300	DEGF	1	X------
CA7427T	TEMP STL HNYCMB IN SURF LOC 20	- 250	+ 300	DEGF	1	X------
CA7428T	TEMP STL HNYCMB IN SURF LOC 21	- 250	+ 300	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CA7430T	TEMP STL HNYCMB IN SURF LOC 23	- 250	+ 300	DEGF	1	X------
CA7432T	TEMP STL HNYCMB IN SURF LOC 25	- 250	+ 300	DEGF	1	X------
CA7434T	TEMP STL HNYCMB IN SURF LOC 27	- 250	+ 300	DEGF	1	X------
CA7435T	TEMP STL HNYCMB IN SURF LOC 28	- 250	+ 300	DEGF	1	X------
CA7436T	TEMP STL HNYCMB IN SURF LOC 29	- 250	+ 300	DEGF	1	X------
CA7437T	TEMP STL HNYCMB IN SURF LOC 30	- 250	+ 300	DEGF	1	X------
CA7438T	TEMP STL HNYCMB IN SURF LOC 31	- 250	+ 300	DEGF	1	X------
CA7440T	TEMP STL HNYCMB IN SURF LOC 33	- 250	+ 300	DEGF	1	X------
CA7441T	TEMP STL HNYCMB IN SURF LOC 34	- 250	+ 300	DEGF	1	X------
CA7442T	TEMP STL HNYCMB IN SURF LOC 35	- 250	+ 300	DEGF	1	X------
CA7444T	TEMP STL HNYCMB IN SURF LOC 37	- 250	+ 300	DEGF	1	X------
CA7456T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7458T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7463T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7466T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7480T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7488T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7491T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7495T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7498T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7499T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7500T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7501T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7502T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7503T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7509T	TEMP SIDE HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7511T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7512T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7517T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7518T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7519T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7520T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7523T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7525T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7527T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7550P	PRESS OUTSIDE HS REF	0.01	+ 1.0	TORR	1	X------
CA7551T	TEMP FWD HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA7552P	PRESS CREW COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7553P	PRESS CREW COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7554P	PRESS CREW COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7555P	PRESS FWD HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7556P	PRESS CENTER PARACHUTE	0.01	+ 1.0	TORR	1	X------
CA7557P	PRESS AFT COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7558P	PRESS AFT COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7559P	PRESS CREW COMPT HS INSUL	0.01	+ 1.0	TORR	1	X------
CA7702T	TEMP INNER CABIN FLOOR	- 100	+ 200	DEGF	1	X------
CA7703T	TEMP INNER CABIN FLOOR	- 100	+ 200	DEGF	1	X------
CA7705T	TEMP INNER CABIN WALL	- 100	+ 200	DEGF	1	X------
CA7706T	TEMP INNER CABIN WALL	- 100	+ 200	DEGF	1	X------
CA7708T	TEMP INNER CABIN WALL	- 100	+ 200	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CA7710T	TEMP INNER CABIN WALL	- 100	+ 200	DEGF	1	X------
CA7830T	RH REND WIND HS PANE CNTR OUT	- 250	+ 300	DEGF	1	X------
CA7831T	RH REND WIND HS PANE EDGE OUT	- 250	+ 300	DEGF	1	X------
CA7836T	RH REND WIND IN PANE EDGE IN	- 100	+ 200	DEGF	1	X------
CA7837T	RH REND WIND IN PANE CNTR IN	- 100	+ 200	DEGF	1	X------
CA7970T	TEMP HATCH THERMAL SEAL 1 LOC 1	- 250	+ 300	DEGF	1	X------
CA7971T	TEMP HATCH THERMAL SEAL 1 LOC 2	- 250	+ 300	DEGF	1	X------
CA7972T	TEMP HATCH THERMAL SEAL 1 LOC 3	- 250	+ 300	DEGF	1	X------
CA7973T	TEMP HATCH THML SEAL 1 BASE LOC 1	- 250	+ 300	DEGF	1	X------
CA7974T	TEMP HATCH MICRO MET PANE OUTER	- 250	+ 300	DEGF	1	X------
CA7975T	TEMP HATCH HS PANE OUTER SURF	- 250	+ 300	DEGF	1	X------
CA7976T	TEMP HATCH HS PANE EDGE IN SURF	- 250	+ 300	DEGF	1	X------
CA7977T	TEMP HATCH HS FRAME INNER	- 250	+ 300	DEGF	1	X------
CA7978T	TEMP HATCH MID PANE OUTER SURF	- 250	+ 300	DEGF	1	X------
CA7979T	TEMP HATCH INNER PANE INNER SURF	- 250	+ 300	DEGF	1	X------
CA7980T	TEMP DUMP VALVE SHAFT	- 250	+ 300	DEGF	1	X------
CA7987T	TEMP HATCH ABLATOR SURFACE LOC 4	- 250	+ 300	DEGF	1	X------
CA7988T	TEMP HATCH ABLATOR BONDLN LOC 4	- 250	+ 300	DEGF	1	X------
CA7989T	TEMP HATCH ALUM PLATE LOC 4	- 250	+ 300	DEGF	1	X------
CA7990T	TEMP HATCH ABLATOR SURFACE LOC 1	- 250	+ 300	DEGF	1	X------
CA7991T	TEMP ALUM ADAPTER FR OUTER SURF	- 250	+ 300	DEGF	1	X------
CA7992T	TEMP HATCH ALUM PLATE SURF	- 250	+ 300	DEGF	1	X------
CA7993T	TEMP HATCH FR ABLATOR SURF GAP	- 250	+ 300	DEGF	1	X------
CA7994T	TEMP HATCH THERMAL SEAL NO 2	- 250	+ 300	DEGF	1	X------
CA7995T	TEMP ALUM ADAPTER FR INNER SURF	- 250	+ 300	DEGF	1	X------
CA7996T	TEMP HATCH ABLATOR SURFACE	- 250	+ 300	DEGF	1	X------
CA7997T	TEMP HATCH ABLATOR BONDLINE	- 250	+ 300	DEGF	1	X------
CA7998T	TEMP HATCH ALUMINUM PLATE	- 250	+ 300	DEGF	1	X------
CA8001T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8003T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8005T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8008T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8010T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8014T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8022T	TEMP AFT HS STL HONEYCOMB IN	- 250	+ 300	DEGF	1	X------
CA8031T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8035T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8039T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8044T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8050T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8054T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8058T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8062T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8066T	TEMP AFT HS ABLATOR SURF	- 250	+ 300	DEGF	1	X------
CA8274T	TEMP TRUSS FRAME 17 CHANNEL	- 100	+ 200	DEGF	1	X------
CA8275T	TEMP TRUSS FRAME 17 TEE	- 100	+ 200	DEGF	1	X------
CA8276T	TEMP TRUSS FRAME 17 CHANNEL	- 100	+ 200	DEGF	1	X------
CA8278T	TEMP TRUSS FRAME 17 CHANNEL	- 100	+ 200	DEGF	1	X------
CA8279T	TEMP TRUSS FRAME 17 TEE	- 100	+ 200	DEGF	1	X------
CA8526T	TEMP RH PARACHUTE SURF	- 100	+ 250	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR FA ST PE	MDPMMMC SN3LSSO CY4 SO
CA8530T	TEMP LH PARACHUTE SURF	- 100	+ 250	DEGF	1	X------
CA8534T	TEMP RH PARACHUTE SURF	- 100	+ 250	DEGF	1	X------
CA8536T	TEMP LH PARACHUTE SURF	- 100	+ 250	DEGF	1	X------
CA8560T	TEMP SM/CM UMB WIRING BUNDLE	- 50	+ 150	DEGF	1	X------
CA8562T	TEMP SM/CM UMB GUILLOTINE HOUSE.	- 50	+ 150	DEGF	1	X------
CA8563T	TEMP SM/CM UMB WIRING BUNDLE	- 50	+ 150	DEGF	1	X------
CA8564T	TEMP SM/CM UMB WIRING BUNDLE	- 50	+ 150	DEGF	1	X------
CA8565T	TEMP SM/CM UMB WATER LINE	- 50	+ 150	DEGF	1	X------
CA8566T	TEMP SM/CM UMB FAIRING IN SURF	- 50	+ 150	DEGF	1	X------
QA8600T	TEMP SUPPORT STAND RING	- 250	+ 300	DEGF	1	X------
QA8601T	TEMP SUPPORT STAND RING	- 250	+ 300	DEGF	1	X------
QA8602T	TEMP SUPPORT STAND RING	- 250	+ 300	DEGF	1	X------
QA8603T	TEMP SUPPORT STAND RING	- 250	+ 300	DEGF	1	X------
QA8604T	TEMP SUPPORT STAND RING	- 250	+ 300	DEGF	1	X------
QA8605T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8606T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8607T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8608T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8609T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8610T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8611T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8612T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8613T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8614T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8615T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8616T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8617T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8618T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8619T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8660T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8661T	TEMP SUPPORT STAND LEG	- 250	+ 300	DEGF	1	X------
QA8662T	TEMP POLE, SIDE FACING IN	- 250	+ 300	DEGF	1	X------
QA8663T	TEMP POLE, SIDE FACING OUT	- 250	+ 300	DEGF	1	X------
QA8664T	TEMP POLE, SIDE FACING LEFT	- 250	+ 300	DEGF	1	X------
QA8665T	TEMP POLE, SIDE FACING RIGHT	- 250	+ 300	DEGF	1	X------
QA8666T	TEMP POLE, SIDE FACING LEFT	- 250	+ 300	DEGF	1	X------
QA8667T	TEMP POLE, SIDE FACING OUT	- 250	+ 300	DEGF	1	X------
QA8668T	TEMP POLE, SIDE FACING IN	- 250	+ 300	DEGF	1	X------
QA8669T	TEMP POLE, SIDE FACING OUT	- 250	+ 300	DEGF	1	X------
QA8670T	TEMP POLE, SIDE FACING RIGHT	- 250	+ 300	DEGF	1	X------
QA8671T	TEMP CABLING FROM J-22	- 250	+ 300	DEGF	1	X------
QA8672T	TEMP CABLING FROM J-22	- 250	+ 300	DEGF	1	X------
QA8673T	TEMP CABLING FROM J-22	- 250	+ 300	DEGF	1	X------
QA8674T	TEMP CABLING FROM J-12	- 250	+ 300	DEGF	1	X------
QA8675T	TEMP CABLING FROM J-12	- 250	+ 300	DEGF	1	X------
QA8676T	TEMP CABLING FROM J-12	- 250	+ 300	DEGF	1	X------
QA8677T	TEMP CABLING FROM J-6	- 250	+ 300	DEGF	1	X------
QA8678T	TEMP CABLING FROM J-6	- 250	+ 300	DEGF	1	X------
QA8679T	TEMP SUIT O2 SUPPLY MON LINE	- 250	+ 300	DEGF	1	X------
QA8680T	TEMP SUIT O2 SUPPLY MON LINE	- 250	+ 300	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
QA8681T	TEMP SUIT O2 SUPPLY MON LINE	- 250	+ 300	DEGF	1	X------
QA8682T	TEMP LI-OH ABSORB OUT MON LINE	- 250	+ 300	DEGF	1	X------
QA8683T	TEMP LI-OH ABSORB OUT MON LINE	- 250	+ 300	DEGF	1	X------
QA8684T	TEMP LI-OH ABSORB OUT MON LINE	- 250	+ 300	DEGF	1	X------
QA8685T	TEMP WATER MAKE-UP LINE	- 250	+ 300	DEGF	1	X------
QA8686T	TEMP WATER MAKE-UP LINE	- 250	+ 300	DEGF	1	X------
QA8687T	TEMP WATER MAKE-UP LINE	- 250	+ 300	DEGF	1	X------
CA8688T	TEMP CM DISCONNECT PANEL	- 250	+ 300	DEGF	1	X------
CA8689T	TEMP CM DISCONNECT PANEL	- 250	+ 300	DEGF	1	X------
QA8695T	LUNAR PLANE COVER TEMP LOC 1	- 250	+ 300	DEGF	1	X------
QA8696T	LUNAR PLANE COVER TEMP LOC 2	- 250	+ 300	DEGF	1	X------
CA8800R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8801T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8804R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8805T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8808R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8809T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8812R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8813T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8816R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8817T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8820R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8821T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8824R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8825T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8828R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8829T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8832R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8833T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8836R	RATE HEAT FLUX SIDE HS	- 8	+ 8	BF2M	1	X------
CA8837T	REF TEMP HEAT FLUX SIDE HS	- 250	+ 300	DEGF	1	X------
CA8840R	RATE HEAT FLUX FWD HS	- 8	+ 8	BF2M	1	X------
CA8841T	REF TEMP HEAT FLUX FWD HS	- 250	+ 300	DEGF	1	X------
CA8844R	RATE HEAT FLUX FWD HS	- 8	+ 8	BF2M	1	X------
CA8845T	REF TEMP HEAT FLUX FWD HS	- 250	+ 300	DEGF	1	X------
CA8848R	RATE HEAT FLUX FWD HS	- 8	+ 8	BF2M	1	X------
CA8849T	REF TEMP HEAT FLUX FWD HS	- 250	+ 300	DEGF	1	X------
CA8852R	RATE HEAT FLUX FWD HS	- 8	+ 8	BF2M	1	X------
CA8853T	REF TEMP HEAT FLUX FWD HS	- 250	+ 300	DEGF	1	X------
SA8856R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA8857T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8860R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA8861T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8864R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA8865T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8868R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA9869T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8872R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA8873T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8876R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - STRUCTURES

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
SA8877T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8880R	RATE HEAT FLUX SM OUTER SHELL	- 8	+ 8	BF2M	1	X------
SA8881T	REF TEMP HEAT FLUX SM OUT SHELL	- 250	+ 300	DEGF	1	X------
SA8884R	RATE HEAT FLUX SPS ENG NOZZLE	- 8	+ 8	BF2M	1	X------
SA8885T	REF TEMP HEAT FLUX SPS ENG NOZ	- 250	+ 300	DEGF	1	X------
SA8888R	RATE HEAT FLUX SPS ENG NOZZLE	- 8	+ 8	BF2M	1	X------
SA8889T	REF TEMP HEAT FLUX SPS ENG NOZ	- 250	+ 300	DEGF	1	X------
SA8892R	RATE HEAT FLUX SPS ENG NOZZLE	- 8	+ 8	BF2M	1	X------
SA8893T	REF TEMP HEAT FLUX SPS ENG NOZ	- 250	+ 300	DEGF	1	X------
SA8896R	RATE HEAT FLUX SPS ENG NOZZLE	- 8	+ 8	BF2M	1	X------
SA8897T	REF TEMP HEAT FLUX SPS ENG NOZ	- 250	+ 300	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR FA ST PE	MDPMMMC SN3LSSO CY4 SO	
SC0092X	PRESS LOW O2 TANKS 1 AND 2	NORM	LOW	EV	1	XXXX-X-	
SC0093X	MOTOR SW-CLOSE O2 TANKS 1 AND 2	OPEN	CLOSE	EV	1	XXXX-X-	
SC0094X	PRESS LOW H2 TANKS 1 AND 2	NORM	LOW	EV	1	-XXX-X-	
SC0095X	MOTOR SW-CLOSE H2 TANKS 1 AND 2	OPEN	CLOSE	EV	1	-XXX-X-	
CC0120B	PHASE ROTATION AC BUS 1		PH SEQ	ABC	1	------X	
CC0121B	PHASE ROTATION AC BUS 2		PH SEQ	ABC	1	------X	
CC0136X	FC BUS DISCONNECT C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0136X	FC BUS DISCONNECT C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0137X	MN BUS A UNDERVOLT C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0137X	MN BUS A UNDERVOLT C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0138X	MN BUS B UNDERVOLT C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0138X	MN BUS B UNDERVOLT C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0139X	AC BUS 1 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0139X	AC BUS 1 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0140X	AC BUS 2 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0140X	AC BUS 2 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0141X	AC BUS 1 OVERLOAD C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0141X	AC BUS 1 OVERLOAD C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0142X	AC BUS 2 OVERLOAD C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0142X	AC BUS 2 OVERLOAD C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0143X	CRYO PRESS C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0143X	CRYO PRESS C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0144X	INV 1 TEMP HI C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0144X	INV 1 TEMP HI C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0145X	INV 2 TEMP HI C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0145X	INV 2 TEMP HI C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0146X	INV 3 TEMP HI C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0146X	INV 3 TEMP HI C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0147X	FC 1 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0147X	FC 1 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0148X	FC 2 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0148X	FC 2 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0149X	FC 3 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CC0149X	FC 3 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CC0201V	AC VOLTAGE MAIN BUS 1 PHASE B	0 +	150	VAC	1	X------	
CC0202V	AC VOLTAGE MAIN BUS 1 PHASE C	0 +	150	VAC	1	X------	
CC0204V	AC VOLTAGE MAIN BUS 2 PHASE B	0 +	150	VAC	1	X------	
CC0205V	AC VOLTAGE MAIN BUS 2 PHASE C	0 +	150	VAC	1	X------	
CC0208V	DC VOLTAGE NON ESSENTIAL BUS	0 +	45	VDC	10	------X	
CC0209V	DC VOLTAGE POST LANDING BUS	0 +	45	VDC	1	------X	
CC0213F	FREQUENCY AC BUS 1 PHASE A	380	420	CPS	10	------X	
CC0217F	FREQUENCY AC BUS 2 PHASE A	380	420	CPS	10	------X	
SC0281T	TEMP O2 INLET F/C 2	- 150 +	200	DEGF	1	X------	
SC0282T	TEMP O2 INLET F/C 3	- 150 +	200	DEGF	1	X------	
SC0321T	TEMP H2 INLET F/C 2	- 150 +	200	DEGF	1	X------	
SC0322T	TEMP H2 INLET F/C 3	- 150 +	200	DEGF	1	X------	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
SC0360V	FAN MOTOR OPERATION TANK 1 O2				1	--XX---
SC0361V	FAN MOTOR OPERATION TANK 2 O2				1	--XX---
SC0362V	FAN MOTOR OPERATION TANK 1 H2				1	--XX---
SC0363V	FAN MOTOR OPERATION TANK 2 H2				1	--XX---
SC0700T	TEMP RAD PANEL 1 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0701T	TEMP RAD PANEL 1 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0702T	TEMP RAD PANEL 1 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0703T	TEMP RAD PANEL 2 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0704T	TEMP RAD PANEL 2 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0705T	TEMP RAD PANEL 2 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0706T	TEMP RAD PANEL 3 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0707T	TEMP RAD PANEL 3 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0708T	TEMP RAD PANEL 3 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0709T	TEMP RAD PANEL 4 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0710T	TEMP RAD PANEL 4 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0711T	TEMP RAD PANEL 4 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0712T	TEMP RAD PANEL 5 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0713T	TEMP RAD PANEL 5 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0714T	TEMP RAD PANEL 5 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0715T	TEMP RAD PANEL 6 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0716T	TEMP RAD PANEL 6 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0717T	TEMP RAD PANEL 6 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0718T	TEMP RAD PANEL 7 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0719T	TEMP RAD PANEL 7 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0720T	TEMP RAD PANEL 7 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0721T	TEMP RAD PANEL 8 FC 1 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0722T	TEMP RAD PANEL 8 FC 2 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0723T	TEMP RAD PANEL 8 FC 3 TUBE INLET	- 50	+ 250	DEGF	1	X------
SC0724T	TEMP RAD PANEL 8 FC 1 TUBE OUT	- 50	+ 250	DEGF	1	X------
SC0725T	TEMP RAD PANEL 8 FC 2 TUBE OUT	- 50	+ 250	DEGF	1	X------
SC0726T	TEMP RAD PANEL 8 FC 3 TUBE OUT	- 50	+ 250	DEGF	1	X------
SC0741T	TEMP FC 3 BYPASS LINE	- 100	+ 50	DEGF	1	X------
SC0742T	TEMP FC 1 BYPASS LINE	- 100	+ 50	DEGF	1	X------
SC0743T	TEMP FC 2 BYPASS LINE	- 100	+ 50	DEGF	1	X------
SC0760T	TEMP RADIATOR EDGE PANEL 4	- 50	+ 250	DEGF	1	X------
SC0761T	TEMP RADIATOR EDGE PANEL 4	- 50	+ 250	DEGF	1	X------
SC0762T	TEMP RADIATOR EDGE PANEL 4	- 50	+ 250	DEGF	1	X------
SC0763T	TEMP RADIATOR EDGE PANEL 4	- 50	+ 250	DEGF	1	X------
SC0764T	TEMP FAIRING STRUCTURE PANEL 4	- 200	+ 300	DEGF	1	X------
SC0765T	TEMP FAIRING STRUCTURE PANEL 4	- 200	+ 300	DEGF	1	X------
SC0766T	TEMP FAIRING STRUCTURE PANEL 4	- 200	+ 300	DEGF	1	X------
SC0767T	TEMP FAIRING STRUCTURE PANEL 4	- 200	+ 300	DEGF	1	X------
SC0768T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0769T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0770T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0771T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0772T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0773T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0774T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------
SC0775T	TEMP FIBERGLASS EDGE INSUL PNL 4	- 100	+ 200	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SU
SC0784T	TEMP EPS RAD PANEL 1 INSUL	- 50	+ 250	DEGF	1	X------
SC0785T	TEMP EPS RAD PANEL 4 INSUL	- 50	+ 250	DEGF	1	X------
SC0786T	TEMP EPS RAD PANEL 7 INSUL	- 50	+ 250	DEGF	1	X------
SC0828T	DIFF PRESS PANEL 8 FC 1 TUBE	0	+ 10	PSID	1	X------
SC0829T	DIFF PRESS PANEL 8 FC 2 TUBE	0	+ 10	PSID	1	X------
SC0830T	DIFF PRESS PANEL 8 FC 3 TUBE	0	+ 10	PSID	1	X------
SC0831P	DIFF PRESS IN-OUT GLYCOL FC1	0	+ 45	PSID	1	X------
SC0832P	DIFF PRESS IN-OUT GLYCOL FC2	0	+ 45	PSID	1	X------
SC0833P	DIFF PRESS IN-OUT GLYCOL FC3	0	+ 45	PSID	1	X------
SC0841R	FLOWRATE GLYCOL FC 1	+ 40	+ 100	LB/H	1	X------
SC0842R	FLOWRATE GLYCOL FC 2	+ 40	+ 100	LB/H	1	X------
SC0843R	FLOWRATE GLYCOL FC 3	+ 40	+ 100	LB/H	1	X------
SC0860T	TEMP SHELF INBOARD FC 2	+ 10	+ 200	DEGF	1	X------
SC0861T	TEMP SHELF UNDER FC 2	+ 10	+ 200	DEGF	1	X------
SC0862T	TEMP SHELF BETWEEN FUEL CELLS	+ 10	+ 200	DEGF	1	X------
SC0863T	TEMP SHELF BETWEEN FC 1 AND 3	+ 10	+ 200	DEGF	1	X------
SC0864T	TEMP SHELF BETWEEN FC 2 AND 3	+ 10	+ 200	DEGF	1	X------
SC0865T	TEMP SHELF CORNER BAY 4	+ 10	+ 200	DEGF	1	X------
SC0866T	TEMP SHELF UNDER FC 3	+ 10	+ 200	DEGF	1	X------
SC0867T	TEMP INSIDE SURF OUTER SHELL	+ 10	+ 200	DEGF	1	X------
SC0868T	TEMP INSIDE SURF OUTER SHELL	+ 10	+ 200	DEGF	1	X------
SC0880T	TEMP FC 2 CONE MOUNT NEAR SHOCK	- 50	+ 250	DEGF	1	X------
SC0881T	TEMP FC 2 CONE MOUNT NEAR SHOCK	+ 50	+ 250	DEGF	1	X------
SC0882T	TEMP FC 3 CONE MOUNT NEAR SHOCK	+ 50	+ 250	DEGF	1	X------
SC0883T	TEMP FC 3 CONE MOUNT NEAR SHOCK	+ 50	+ 250	DEGF	1	X------
SC0884T	TEMP FC 3 CONE MOUNT NEAR SHOCK	+ 50	+ 250	DEGF	1	X------
SC0885T	TEMP FC 2 CONE MOUNT	+ 50	+ 250	DEGF	1	X------
SC0886T	TEMP FC 2 CONE MOUNT	+ 50	+ 250	DEGF	1	X------
SC0887T	TEMP FC 3 CONE MOUNT	+ 50	+ 250	DEGF	1	X------
SC0888T	TEMP FC 3 CONE MOUNT	+ 50	+ 250	DEGF	1	X------
SC0889T	TEMP FC 3 CONE MOUNT	+ 50	+ 250	DEGF	1	X------
SC0920T	TEMP H2 TANK 1 SURF TOP	- 100	+ 200	DEGF	1	X------
SC0921T	TEMP H2 TANK 1 SURF OUTBOARD	- 100	+ 200	DEGF	1	X------
SC0923T	TEMP H2 TANK 1 SURF FACING BM 4	- 100	+ 200	DEGF	1	X------
SC0924T	TEMP H2 TANK 1 SURF BOTTOM	- 100	+ 200	DEGF	1	X------
SC0926T	TEMP H2 TANK 2 SURF FACING BM 3	- 100	+ 200	DEGF	1	X------
SC0928T	TEMP H2 TANK 2 SURF BOTTOM	- 100	+ 200	DEGF	1	X------
SC0929T	TEMP O2 TANK 1 SURF TOP	- 100	+ 200	DEGF	1	X------
SC0931T	TEMP O2 TANK 1 SURF INBOARD	- 100	+ 200	DEGF	1	X------
SC0932T	TEMP O2 TANK 1 SURF FACING TNK 2	- 100	+ 200	DEGF	1	X------
SC0934T	TEMP O2 TANK 2 SURF BOTTOM	- 100	+ 200	DEGF	1	X------
SC0935T	TEMP O2 TANK 2 SURF FACING BM 3	- 100	+ 200	DEGF	1	X------
SC0936T	TEMP O2 TANK 2 SURF FACING BM 4	- 100	+ 200	DEGF	1	X------
SC2075X	FUEL CELL H2 INLINE HEATER ON		ON	EV	1	XXX--X-
SC2076X	FUEL CELL H2 INLINE HEATER OFF		OFF	EV	1	XXX--X-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
SC2116V	DC VOLTS FC 1 OUTPUT	+ 25	+ 40	VDC	1	XXXX-X-	
SC2117V	DC VOLTS FC 2 OUTPUT	+ 25	+ 40	VDC	1	XXXX-X-	
SC2118V	DC VOLTS FC 3 OUTPUT	+ 25	+ 40	VDC	1	XXXX-X-	
SC2130X	PURGE VALVE H2 F/C 1 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2131X	PURGE VALVE H2 F/C 2 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2132X	PURGE VALVE H2 F/C 3 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2133X	PURGE VALVE O2 F/C 1 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2134X	PURGE VALVE O2 F/C 2 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2135X	PURGE VALVE O2 F/C 3 OPERATE	CLOSE	OPEN	EV	1	XXXX-X-	
SC2326X	F/C1 O2/H2 SHUTOFF VLV OPEN HOLD	OFF	HOLD	EV	1	-XXX---	
SC2327X	F/C2 O2/H2 SHUTOFF VLV OPEN HOLD	OFF	HOLD	EV	1	-XXX---	
SC2328X	F/C3 O2/H2 SHUTOFF VLV OPEN HOLD	OFF	HOLD	EV	1	-XXX---	
SC2410X	DC POWER DEADFACE SWITCH OPEN	CLOSED	OPEN	EV	1	-XXX-X-	
GC5000V	F/C 1 HEATER VOLTAGE ZONE 1	0	120	VRMS	1	XXXX-X-	
GC5001V	F/C 1 HEATER VOLTAGE ZONE 2	0	120	VRMS	1	XXXX-X-	
GC5002V	F/C 1 HEATER VOLTAGE ZONE 3	0	120	VRMS	1	XXXX-X-	
GC5003V	F/C 2 HEATER VOLTAGE ZONE 1	0	120	VRMS	1	XXXX-X-	
GC5004V	F/C 2 HEATER VOLTAGE ZONE 2	0	120	VRMS	1	XXXX-X-	
GC5005V	F/C 2 HEATER VOLTAGE ZONE 3	0	120	VRMS	1	XXXX-X-	
GC5006V	F/C 3 HEATER VOLTAGE ZONE 1	0	120	VRMS	1	XXXX-X-	
GC5007V	F/C 3 HEATER VOLTAGE ZONE 2	0	120	VRMS	1	XXXX-X-	
GC5008V	F/C 3 HEATER VOLTAGE ZONE 3	0	120	VRMS	1	XXXX-X-	
GC5009C	F/C 1 HEATER CURRENT ZONE 1	0	5	ARMS	1	XXXX-X-	
GC5010C	F/C 1 HEATER CURRENT ZONE 2	0	50	ARMS	1	XXXX-X-	
GC5011C	F/C 1 HEATER CURRENT ZONE 3	0	5	ARMS	1	XXXX-X-	
GC5012C	F/C 2 HEATER CURRENT ZONE 1	0	5	ARMS	1	XXXX-X-	
GC5013C	F/C 2 HEATER CURRENT ZONE 2	0	50	ARMS	1	XXXX-X-	
GC5014C	F/C 2 HEATER CURRENT ZONE 3	0	5	ARMS	1	XXXX-X-	
GC5015C	F/C 3 HEATER CURRENT ZONE 1	0	5	ARMS	1	XXXX-X-	
GC5016C	F/C 3 HEATER CURRENT ZONE 2	0	50	ARMS	1	XXXX-X-	
GC5017C	F/C 3 HEATER CURRENT ZONE 3	0	5	ARMS	1	XXXX-X-	
GC5018X	F/C HTR CONTROL ACQUIRED	OFF	ON	EV	1	-XXX-X-	
GC5019E	F/C 1 HEATER POWER	0	5000	WATT	1	X------	
GC5020E	F/C 2 HEATER POWER	0	5000	WATT	1	X------	
GC5021E	F/C 3 HEATER POWER	0	5000	WATT	1	X------	
GC5022X	HYDROGEN STANDBY		STANDBY	EV	1	--X-X--	
GC5023X	HYDROGEN REMOTE		REMOTE	EV	1	--X-X--	
GC5024V	GSE POWER SUPPLY 1 VOLTAGE	0	+ 40	VDC	1	X-X----	
GC5024V	GSE POWER SUPPLY BUS A VOLTAGE	0	+ 40	VDC	1	-X-----	SC106 + SUBS
GC5024V	GSE POWER SUPPLY 1 VOLTAGE	0	+ 40	VDC	1	-X---X-	DNY SC101,103 + 104, SC101,103
GC5024V	GSE POWER SUPPLY BUS A VOLTAGE	0	+ 40	VDC	1	---X---	
GC5024V	GSE POWER SUPPLY BUS A VOLTAGE	0	+ 40	VDC	1	----X-	SC104 + SUBS
GC5025C	+28VDC POWER SUPPLY 1 CURRENT	0	+ 200	ADC	1	X-X----	
GC5025C	+28VDC POWER SUPPLY BUS A CURRENT	0	+ 200	ADC	1	-X-----	SC106 + SUBS
GC5025C	+28VDC POWER SUPPLY 1 CURRENT	0	+ 200	ADC	1	-X---X-	DNY SC101,103 + 104, SC101,103
GC5025C	+28VDC POWER SUPPLY BUS A CURRENT	0	+ 200	ADC	1	---X---	
GC5025C	+28VDC POWER SUPPLY BUS A CURRENT	0	+ 200	ADC	1	-----X-	SC104 + SUBS

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR FA ST PE	MOPMMMC SN3LSSO CY4 SO	
GC5026X	HEATSINK 1 FAN OFF INDICATE	OFF	ON	EV	1	XX-----	
GC5026X	HEATSINK 1 FAN OFF INDICATE	ON	OFF	EV	1	--XX-X-	
GC5027X	HEATSINK 2 FAN OFF INDICATE	OFF	ON	EV	1	XX-----	
GC5027X	HEATSINK 2 FAN OFF INDICATE	ON	OFF	EV	1	--XX-X-	
GC5028V	GSE POWER SUPPLY 2 VOLTAGE	0 +	40	VDC	1	X-X----	
GC5028V	GSE POWER SUPPLY BUS B VOLTAGE	0 +	40	VDC	1	-X-----	SC106 +SUBS
GC5028V	GSE POWER SUPPLY 2 VOLTAGE	0 +	40	VDC	1	-X---X-	DNY SC101,103 + 104, SC101,103
GC5028V	GSE POWER SUPPLY BUS B VOLTAGE	0 +	40	VDC	1	---X---	
GC5028V	GSE POWER SUPPLY BUS B VOLTAGE	0 +	40	VDC	1	-----X-	SC104 + SUBS
GC5029C	+28VDC POWER SUPPLY 2 CURRENT	0 +	200	ADC	1	X-X----	
GC5029C	+28VDC POWER SUPPLY BUS B CURRENT	0 +	200	ADC	1	-X-----	SC106 +SUBS
GC5029C	+28VDC POWER SUPPLY 2 CURRENT	0 +	200	ADC	1	-X---X-	DNY SC101,103 + 104, SC101,103
GC5029C	+28VDC POWER SUPPLY BUS B CURRENT	0 +	200	ADC	1	---X---	
GC5029C	+28VDC POWER SUPPLY BUS B CURRENT	0 +	200	ADC	1	-----X-	SC104 + SUBS
GC5030V	MOTOR SW POWER SUPPLY VOLTAGE	0 +	40	VDC	1	---X---	
GC5032V	PHASE A BUS 1	0	150	VRMS	1	-----X-	
GC5033V	PHASE B BUS 1	0	150	VRMS	1	-----X-	
GC5034V	PHASE C BUS 1	0	150	VRMS	1	-----X-	
GC5035V	PHASE A BUS 2	0	150	VRMS	1	-----X-	
GC5036V	PHASE B BUS 2	0	150	VRMS	1	-----X-	
GC5037V	PHASE C BUS 2	0	150	VRMS	1	-----X-	
GC5038X	INVERTER POWER ON	OFF	ON	EV	1	-----X-	
GC5039X	HYDROGEN EMERGENCY OVERRIDE		OVERIDE	EV	1	--X-X--	
GC5075X	GROUND POWER FILTER BANK A ON		ON	EV	1	--XX-X-	
GC5076X	GROUND POWER FILTER BANK B ON		ON	EV	1	--XX-X-	
GC5100X	SM DEADFACE SYS 1 INIT A GO	NORM	GO	EV	1	-XXX-X-	
GC5101X	SM DEADFACE SYS 1 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GC5102X	SM DEADFACE SYS 1 INIT B GO	NORM	GO	EV	1	-XXX-X-	
GC5103X	SM DEADFACE SYS 1 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GC5104X	SM DEADFACE SYS 2 INIT A GO	NORM	GO	EV	1	-XXX-X-	
GC5105X	SM DEADFACE SYS 2 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GC5106X	SM DEADFACE SYS 2 INIT B GO	NORM	GO	EV	1	-XXX-X-	
GC5107X	SM DEADFACE SYS 2 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-	
FC5108X	TS2 SUBCOOLER OPERATING TEMP H2		SW-ON	EV	1	--X-X--	
FC5109P	PT9 SUBCOOLER OUTLET PRESSURE H2	0 +	300	PSIG	1	--X----	
GC5110X	ACE PS2 OUTPUT ON	OFF	ON	EV	1	---X---	
GC5111X	BATTERY ON BUS (PS2)	OFF	ON	EV	1	---X---	
GC5112X	BATTERY ENABLE ON (PS2)	OFF	ON	EV	1	---X---	
GC5113X	REDUND PS-PS2 ENABLED (XFERD)	OFF	ON	EV	1	---X---	
GC5114V	PS2 DC OUTPUT VOLTAGE	0 +	40	VDC	1	---X---	
GC5115X	PS2 FEEDER BUS A ON	OFF	ON	EV	1	---X---	
GC5116X	GSE PS8 OUTPUT ON	OFF	ON	EV	1	---X---	
GC5117X	BATTERY ON BUS (PS8)	OFF	ON	EV	1	---X---	
GC5118X	BATTERY ENABLE ON (PS8)	OFF	ON	EV	1	---X---	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GC5119X	REDUND PS-PS8 ENABLED (XFERD)	OFF	ON	EV	1	---X---
GC5120V	PS8 DC OUTPUT VOLTAGE	0 +	40	VDC	1	---X---
GC5121X	PS8 FEEDER BUS B ON	OFF	ON	EV	1	---X---
GC5122X	400 HZ PRIMARY UNIT ON	OFF	ON	EV	1	---X---
GC5123X	400 HZ BACKUP UNIT ON	OFF	ON	EV	1	---X---
GC5124X	CSM PS3 (BUS A) OUTPUT ON	OFF	ON	EV	1	---X---
GC5125X	BATTERY ON BUS (PS3)	OFF	ON	EV	1	---X---
GC5126X	BATTERY ENABLE ON (PS3)	OFF	ON	EV	1	---X---
GC5127X	REDUND PS-PS3 ENABLED (XFERD)	OFF	ON	EV	1	---X---
GC5128X	CSM PS4 (BUS B) OUTPUT ON	OFF	ON	EV	1	---X---
GC5129X	BATTERY ON BUS (PS4)	OFF	ON	EV	1	---X---
GC5130X	BATTERY ENABLE ON (PS4)	OFF	ON	EV	1	---X---
GC5131V	ACE PS2 MAIN BUS VOLTAGE	0 +	40	VDC	1	---X---
GC5132V	CSM PS3 (BUS A) MAIN BUS VOLTAGE	0 +	40	VDC	1	---X---
GC5133V	CSM PS4 (BUS B) MAIN BUS VOLTAGE	0 +	40	VDC	1	---X---
GC5134V	GSE PS8 MAIN BUS VOLTAGE	0 +	40	VDC	1	---X---
GC5135V	LM SC PS7 MAIN BUS VOLTAGE	0 +	40	VDC	1	---X---
GC5136V	LM SC PS7 DC OUTPUT VOLTAGE	0 +	40	VDC	1	---X---
GC5137X	ML PS(2,3,4,8) LOCKOUT ON	OFF	ON	EV	1	---X---
GC5138X	ACE PS1 OUTPUT ON	OFF	ON	EV	1	----X--
GC5139X	BATTERY ON BUS (PS1)	OFF	ON	EV	1	----X--
GC5140X	BATTERY ENABLE ON (PS1)	OFF	ON	EV	1	----X--
GC5141V	PS1 DC OUTPUT VOLTAGE	0 +	40	VDC	1	----X--
GC5142X	PS1 FEEDER BUS B ON	OFF	ON	EV	1	----X--
GC5143X	GSE PS5 OUTPUT ON	OFF	ON	EV	1	----X--
GC5144X	BATTERY ON BUS (PS5)	OFF	ON	EV	1	----X--
GC5145X	BATTERY ENABLE ON (PS5)	OFF	ON	EV	1	----X--
GC5146V	PS5 DC OUTPUT VOLTAGE	0 +	40	VDC	1	----X--
GC5147X	PS5 FEEDER BUS B ON	OFF	ON	EV	1	----X--
GC5148X	PS5 FEEDER BUS C ON	OFF	ON	EV	1	----X--
GC5149V	ACE PS1 MAIN BUS VOLTAGE	0 +	40	VDC	1	----X--
GC5150V	GSE PS5 MAIN BUS VOLTAGE	0 +	40	VDC	1	----X--
GC5151X	MSS PS(1,5) LOCKOUT ON	OFF	ON	EV	1	----X--
GC5152X	C14-619 PS OUTPUT ON		ON	EV	1	---X---
GC5153V	C14-619 PS OUTPUT VOLTAGE	0 +	40	VDC	1	---X---
FC5154X	PV2 OP LH2 TO FAC DISPOSAL H2		OPEN	EV	1	----X--
GC5160X	PS8 FEEDER BUS C ON	OFF	ON	EV	1	---X---
GC5161X	REDUNDANT PS-PS4 ENABLE (XFERD)	OFF	ON	EV	1	---X---
FC5162P	GO2 CYLINDER PRESSURE	0	3000	PSIG	1	--X-X--
FC5163X	S/C TANK VENT IN PROGRESS		VENT	EV	1	--X-X--
FC5164X	S/C TANK VENT IN PROGRESS		VENT	EV	1	--X-X--
GC5165X	S/M UMBILICAL HYDROGEN	H2 DET		EV	1	--X-XX-
GC5166X	H2 FILL AND VENT PORT XS236	H2 DET		EV	1	--X-X--
GC5167X	H2 FILL AND VENT PORT XS312	H2 DET		EV	1	--X-X--
GC5168X	HYDROGEN VALVE BOX	H2 DET		EV	1	-----X-
GC5168X	LH2 VALVE BOX	H2 DET		EV	1	--X----
GC5169X	INLET EXHAUST FAN	H2 DET		EV	1	--X-X--
GC5170X	S/M FUEL CELLS	H2 DET		EV	1	--X-XX-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSD CY4 SD
GC5171X	S/M H2 UPPER TANK	H2 DET		EV	1	--X-X--
GC5172X	S/M H2 LOWER TANK	H2 DET		EV	1	--X-X--
GC5173X	HYDROGEN SUMMARY	H2 DET		EV	1	--X-X--
GC5178X	HP FUEL DISCONNECT	H2 DET		EV	1	-----X-
GC5179X	LIQUID HYDROGEN TANKS	H2 DET		EV	1	-----X-
GC5180X	TOP OF ALTITUDE CHAMBER	H2 DET		EV	1	-----X-
GC5181X	H2 PENETRATION INSIDE	H2 DET		EV	1	-----X-
GC5182X	H2 PENETRATION OUTSIDE	H2 DET		EV	1	-----X-
GC5183X	LH2 TRANSFER UNIT	H2 DET		EV	1	----X--
GC5185X	LH2 VALVE BOX (FILL)	H2 DET		EV	1	----X--
GC5186X	LH2 VALVE BOX (VENT)	H2 DET		EV	1	----X--
GC5190C	LM PS7 MAIN BUS CURRENT.	0	+ 250	ADC	1	---X---
FC5230X	REMOTE ON	REMOTE		EV	1	--X-X--
FC5232X	LOCAL CONTROL	LOCAL		EV	1	--X-X--
FC5233X	GHE PURGE IN PROGRESS(POST-XFER)	PURGE		EV	1	--X-X--
FC5235X	GHE PURGE READY(PRE-POST-XFER)	READY		EV	1	--X-X--
FC5236X	GHE PURGE IN PROGRESS(PRE-XFER)	PURGE		EV	1	--X-X--
FC5237X	GHE PURGE COMP(PRE-XFER)	COMP		EV	1	--X-X--
FC5238X	GO2 PURGE READY(PRE-POST-XFER)	READY		EV	1	--X-X--
FC5239X	GO2 PURGE IN PROGRESS(PRE-XFER)	PURGE		EV	1	--X-X--
FC5240X	GO2 PURGE COMP(PRE-TRANSFER)	COMP		EV	1	--X-X--
FC5241Q	PORT D FLOW LIQUID	0	7	GPM	1	--X-X--
FC5244X	GO2 PURGE IN PROGRESS(POST-XFER)	PURGE		EV	1	--X-X--
FC5246X	SUBCOOLER VACUUM ON	ON		EV	1	--X-X--
FC5247X	SUBCOOLER FILL IN PROGRESS	FILL		EV	1	--X-X--
FC5248X	SUBCOOLER FILL COMP	COMP		EV	1	--X-X--
FC5249X	PUMP COOL DOWN IN PROGRESS	ON		EV	1	--X-X--
FC5250X	PUMP COOL DOWN COMP	COMP		EV	1	--X-X--
FC5251X	LO2 CIRCULATE IN PROGRESS	ON		EV	1	--X-X--
FC5253P	ELEC CAB PURGE PRESSURE	0 +	5	IH2O	1	--X-X--
FC5254X	LO2 TRANSFER IN PROGRESS	TRANSF		EV	1	--X-X--
FC5255P	PORT D PRESSURE	0	+1500	PSIG	1	--X-X--
FC5257T	PORT D TEMP	- 320	- 285	DEGF	1	--X-X--
FC5258X	GO2 CRYO DRAIN IN PROGRESS	DRAIN		EV	1	--X-X--
FC5260X	DRAIN GO2 INTERCONN LINES I/P	DRAIN		EV	1	--X-X--
FC5265X	REMOTE ON	REMOTE		EV	1	--X-X--
FC5266X	LOCAL CONTROL	LOCAL		EV	1	--X-X--
FC5268X	GHE PURGE IN PROGRESS(POST-XFER)	PURGE		EV	1	--X-X--
FC5270X	GHE PURGE READY(PRE-POST-XFER)	READY		EV	1	--X-X--
FC5271X	GHE PURGE IN PROGRESS(PRE-XFER)	PURGE		EV	1	--X-X--
FC5272X	GHE PURGE COMP(PRE-XFER)	COMP		EV	1	--X-X--
FC5273X	GH2 PURGE READY(PRE-POST-XFER)	READY		EV	1	--X-X--
FC5274X	GH2 PURGE IN PROGRESS(PRE-XFER)	PURGE		EV	1	--X-X--
FC5275X	GH2 PURGE COMP(PRE-TRANSFER)	COMP		EV	1	--X-X--
FC5277Q	PORT D FLOW LIQUID	0	+6.25	GPM	1	--X-X--
FC5279X	GH2 PURGE IN PROGRESS(POST-XFER)	PURGE		EV	1	--X-X--
FC5281X	SUBCOOLER VACUUM ON	ON		EV	1	--X-X--
FC5282X	SUBCOOLER FILL IN PROGRESS	FILL		EV	1	--X-X--
FC5283X	SUBCOOLER FILL COMP	COMP		EV	1	--X-X--
FC5284X	PUMP COOL DOWN IN PROGRESS	ON		EV	1	--X-X--

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION		DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMM4C SN3LSSO CY4 SO
FC5285X	PUMP COOL DOWN COMP			COMP	EV	1	--X-X--
FC5286X	LH2 CIRCULATE IN PROGRESS			ON	EV	1	--X-X--
FC5288P	ELEC CAB PURGE PRESSURE		0 +	4	IH20	1	--X-X--
FC5289X	LH2 TRANSFER IN PROGRESS			TRANSF	EV	1	--X-X--
FC5290P	PORT D PRESSURE		0 +	350	PSIG	1	--X----
FC5292T	PORT D TEMP		-435	- 400	DEGF	1	--X-X--
FC5293X	GH2 CRYO DRAIN IN PROGRESS			DRAIN	EV	1	--X-X--
FC5295X	DRAIN GH2 INTERCONN LINES I/P			DRAIN	EV	1	--X-X--
GC5301V	TANK HEATER VOLTAGE		0 +	100	VDC	1	--XX-X-
GC5302X	TANK HEATER CONTROL ACQUIRED		OFF	ON	EV	1	--XX-X-
GC5303X	O2 TANK 1 HEATER ON VERIFICATION		OFF	ON	EV	1	--XX---
GC5304X	O2 TANK 2 HEATER ON VERIFICATION		OFF	ON	EV	1	--XX-X-
GC5305X	H2 TANK 1 HEATER ON VERIFICATION		OFF	ON	EV	1	--XX---
GC5306X	H2 TANK 2 HEATER ON VERIFICATION		OFF	ON	EV	1	--XX---
FC5328P	VT1 ABS PRESS GO2 EPS	O2	0 +	5	MMHG	1	-XX-XX-
FC5351P	PT1 LO2 TANK FILL PRESS	O2	0 +	1500	PSIG	1	--X-X--
FC5356P	PT1 LH2 TANK FILL PRESS	H2	0 +	500	PSIG	1	--X-X--
FC5378X	LV5 OP FILL LH2 TANK 1	H2		OPEN	EV	1	--X-X--
FC5379X	LV5 CL FILL LH2 TANK 1	H2		CLOSE	EV	1	--X-X--
FC5380X	LV6 OP LH2 TANK 1 VENT	H2		VENT	EV	1	-X-----
FC5380X	LV6 OP LH2 TANK 1 VENT	H2		OPEN	EV	1	--X-XX-
FC5381X	LV6 CL LH2 TANK 1 VENT	H2		VENT	EV	1	-X-----
FC5381X	LV6 CL LH2 TANK 1 VENT	H2		CLOSE	EV	1	--X-XX-
FC5382X	LV7 OP FILL LH2 TANK 2	H2		OPEN	EV	1	--X-X--
FC5383X	LV7 CL FILL LH2 TANK 2	H2		CLOSE	EV	1	--X-X--
FC5384X	LV8 OP LH2 TANK 2 VENT	H2		VENT	EV	1	-X-----
FC5384X	LV8 OP LH2 TANK 2 VENT	H2		OPEN	EV	1	--X-XX-
FC5385X	LV8 CL LH2 TANK 2 VENT	H2		VENT	EV	1	-X-----
FC5385X	LV8 CL LH2 TANK 2 VENT	H2		CLOSE	EV	1	--X-XX-
FC5386X	LV9 OP FC GH2 PURGE	H2		PURGE	EV	1	-X-----
FC5386X	LV9 OP FC GH2 PURGE	H2		OPEN	EV	1	X-X-XX-
FC5387X	LV9 CL FC GH2 PURGE	H2		PURGE	EV	1	-X-----
FC5387X	LV9 CL FC GH2 PURGE	H2		CLOSE	EV	1	X-X-XX-
FC5390P	VT1 VAC PRESS GH2 EPS	H2	0 +	5	MMHG	1	-XX-XX-
FC5391X	LV16 CL FC GH2 SUPPLY	H2		CLOSE	EV	1	XXX-XX-
FC5392X	LV16 OP FC GH2 SUPPLY	H2		OPEN	EV	1	XXX-XX-
FC5408X	LV5 OP FILL LO2 TANK 1	O2		OPEN	EV	1	X-X-XX-
FC5409X	LV5 CL FILL LO2 TANK 1	O2		CLOSE	EV	1	X-X-XX-
FC5410X	LV6 OP LO2 TANK 1 VENT	O2		VENT	EV	1	-X-----
FC5410X	LV6 OP LO2 TANK 1 VENT	O2		OPEN	EV	1	X-X-XX-
FC5411X	LV6 CL LO2 TANK 1 VENT	O2		VENT	EV	1	-X-----
FC5411X	LV6 CL LO2 TANK 1 VENT	O2		CLOSE	EV	1	X-X-XX-
FC5412X	LV7 OP FILL LO2 TANK 2	O2		OPEN	EV	1	X-X-XX-
FC5413X	LV7 CL FILL LO2 TANK 2	O2		CLOSE	EV	1	X-X-XX-
FC5414X	LV8 OP LO2 TANK 2 VENT	O2		VENT	EV	1	-X-----
FC5414X	LV8 OP LO2 TANK 2 VENT	O2		OPEN	EV	1	X-X-XX-
FC5415X	LV8 CL LO2 TANK 2 VENT	O2		VENT	EV	1	-X-----
FC5415X	LV8 CL LO2 TANK 2 VENT	O2		CLOSE	EV	1	X-X-XX-
FC5416X	LV9 OP FC GO2 PURGE	O2		PURGE	EV	1	-X-----
FC5416X	LV9 OP FC GO2 PURGE	O2		OPEN	EV	1	X-X-XX-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION		DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MOPMMMC SN3LSSQ CY4 SQ
FC5417X	LV9 CL FC GO2 PURGE	O2		PURGE	EV	1	-X-----
FC5417X	LV9 CL FC GO2 PURGE	O2		CLOSE	EV	1	X-X-XX-
FC5431X	LV22 OP GN2 ABORT SUPPLY	O2		OPEN	EV	1	XXX-XX-
FC5432X	LV22 CL GN2 ABORT SUPPLY	O2		CLOSE	EV	1	XXX-XX-
FC5434X	LV23 CL DEPRESSURIZE BLEED	O2		BLEED	EV	1	-X-----
FC5434X	LV23 CL DEPRESSURIZE BLEED	O2		CLOSE	EV	1	X-X-XX-
FC5435X	LV22 OP LH2 ABORT SUPPLY	H2		OPEN	EV	1	XXX-XX-
FC5436X	LV22 CL LH2 ABORT SUPPLY	H2		CLOSE	EV	1	XXX-XX-
FC5440Q	LO2 FLOW		0	7	GPM	1	--X-X--
FC5441Q	LO2 LEVEL		0	1500	GAL	1	--X-X--
FC5442T	LO2 TEMP		- 325	- 275	DEGF	1	--X-X--
FC5443P	LO2 STORAGE TANK PRESSURE		0	100	PSIG	1	--X-X--
FC5444P	GN2 PURGE PRESS		0	0.1	PSID	1	--X-X--
FC5445P	GO2 PRESS		0	1500	PSIG	1	--X-X--
FC5451Q	LH2 FLOW		0	7	GPM	1	--X-X--
FC5452Q	LH2 LEVEL		0	2000	GAL	1	--X-X--
FC5453T	LH2 TEMP		- 425	- 400	DEGF	1	--X-X--
FC5454P	LH2 STORAGE TANK PRESSURE		0	100	PSIG	1	--X-X--
FC5455P	GN2 PURGE PRESS		0	0.1	PSID	1	--X-X--
FC5456P	GH2 PRESS		0	500	PSIG	1	--X-X--
FC5457P	GH2 CYLINDER PRESSURE		0	3000	PSIG	1	--X-X--
FC5461P	PT6 FC GH2 PURGE LOW PRESS	H2	0	+ 150	PSIG	1	--X-X--
FC5464P	PT6 FC GO2 PURGE LOW PRESS	O2	0	+ 150	PSIG	1	--X-X--
FC5465P	PT7 FC GN2 PURGE LOW PRESS	O2	0	+ 150	PSIG	1	--X-X--
FC5480T	TT2 LH2 SUBCOOLER OUTLET TEMP					1	--X-X--
FC5481T	LIQUID H2 TEMP IN TANK 1 VENT		- 430	- 380	DEGF	1	--X-X--
FC5482T	LIQUID H2 TEMP IN TANK 2 VENT		- 430	- 380	DEGF	1	--X-X--
FC5483T	LIQUID O2 TEMP IN TANK 1 VENT		- 320	- 220	DEGF	1	--X-X--
FC5484T	LIQUID O2 TEMP IN TANK 2 VENT		- 320	- 220	DEGF	1	--X-X--
FC5487X	LV36 OP SC H2 TANKS TO FAC VENT			OPEN	EV	1	--X-X--
FC5488X	LV36 OP SC O2 TANKS TO FAC VENT			OPEN	EV	1	--X-X--
FC5490X	LV24 OP EMERGENCY DETANK PRESS			OPEN	EV	1	X------
FC5491X	LV24 CL EMERGENCY DETANK PRESS			CLOSE	EV	1	X------
FC5492X	LV25 OP VENT SC LO2 TANKS			OPEN	EV	1	X------
FC5493X	LV25 CL VENT SC LO2 TANKS			CLOSE	EV	1	X------
GC5793X	10 AMP BUS A ON			ON	EV	1	X------
GC5794X	20 AMP BUS A ON			ON	EV	1	X------
GC5795X	30 AMP BUS A ON			ON	EV	1	X------
GC5796X	40 AMP BUS A ON			ON	EV	1	X------
GC5797X	50 AMP BUS A ON			ON	EV	1	X------
GC5798X	60 AMP BUS A ON			ON	EV	1	X------
GC5799X	70 AMP BUS A ON			ON	EV	1	X------
GC5800X	80 AMP BUS A ON			ON	EV	1	X------
GC5801X	90 AMP BUS A ON			ON	EV	1	X------
GC5802X	100 AMP BUS A ON			ON	EV	1	X------
GC5804X	10 AMP BUS B ON			ON	EV	1	X------
GC5805X	20 AMP BUS B ON			ON	EV	1	X------
GC5806X	30 AMP BUS B ON			ON	EV	1	X------
GC5807X	40 AMP BUS B ON			ON	EV	1	X------
GC5808X	50 AMP BUS B ON			ON	EV	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION		DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GC5809X	60 AMP BUS B ON			ON	EV	1	X------
GC5810X	70 AMP BUS B ON			ON	EV	1	X------
GC5811X	80 AMP BUS B ON			ON	EV	1	X------
GC5812X	90 AMP BUS B ON			ON	EV	1	X------
GC5813X	100 AMP BUS B ON			ON	EV	1	X------
FC5916X	LV2 OP FC PURGE VENT VAC	O2		OPEN	EV	1	XXX-XX-
FC5917X	LV2 CL FC PURGE VENT VAC	O2		CLOSE	EV	1	XXX-XX-
FC5919X	LV21 CL GN2 VENT TO ATMOS	O2		CLOSE	EV	1	XXX-XX-
FC5925X	LV1 CL O2 VAC PUMP OFF	O2		CLOSE	EV	1	XXX-XX-
GC5926F	FREQ PHASE A BUS 1		380	420	CPS	1	-----X-
FC5929X	LO2 CIRCULATE AND TRANSFER READY			READY	EV	1	--X-X--
FC5930P	F/C GO2 PRESSURE PORT E		0	+1000	PSIG	1	--X-X--
FC5948X	INSERT GN2 DRAIN LH2 I/P IN PROG			DRAIN	EV	1	--X-X--
FC5949X	CIRCULATE / TRANSFER READY			READY	EV	1	--X-X--
FC5950X	GN2 FC PURGE IN PROGRESS			PURGE	EV	1	--X-X--
FC5951X	GH2 FC PURGE IN PROGRESS			PURGE	EV	1	--X-X--
FC5952X	SC CRIT STOR SYS C/O IN PROG			ON	EV	1	--X-X--
FC5953P	PORT E PRESSURE		0	+ 300	PSIG	1	--X-X--
FC5954X	GN2 FC PURGE PORT E IN PROG			PURGE	EV	1	--X-X--
FC5955X	GO2 FC PURGE IN PROGRESS			PURGE	EV	1	--X-X--
FC5956X	INSERT GN2 DRAIN LO2 I/P IN PROG			DRAIN	EV	1	--X-X--
FC5957X	SC CRIT STOR SYS C/O IN PROG			ON	EV	1	--X-X--
FC5958X	GN2 FC PURGE PORT M IN PROG			PURGE	EV	1	--X-X--
FC5959X	LOW LN2 TANK LEVEL			LOW	EV	1	--X-X--
FC5960P	PORT M PRESSURE		0	+1500	PSIG	1	--X-X--
FC5971X	LV4 OP TANK RELIEF VAC	O2		OPEN	EV	1	-XX-XX-
FC5972X	LV4 CL TANK RELIEF VAC	O2		CLOSE	EV	1	-XX-XX-
FC5973X	LV13 OP TANK FILL VENT VAC	O2		OPEN	EV	1	-XX-XX-
FC5974X	LV13 CL TANK FILL VENT VAC	O2		CLOSE	EV	1	-XX-XX-
FC5975X	PV11 CL TANK FILL VENT VAC	O2		CLOSE	EV	1	--X-X--
FC5976X	PV11 OP TANK FILL VENT VAC	O2		OPEN	EV	1	--X-X--
FC5977X	LV12 OP GO2 VENT TO ATMOS	O2		OPEN	EV	1	XXX-XX-
FC5978X	LV12 CL GO2 VENT TO ATMOS	O2		CLOSE	EV	1	XXX-XX-
FC5979X	PV10 CL FILL TANKS	O2		CLOSE	EV	1	--X-X--
FC5980X	PV10 OP FILL TANKS	O2		OPEN	EV	1	--X-X--
FC5981X	REPLACE FILTER FL1	O2		REPLACE	EV	1	--X-X--
FC5983X	LV14 CL FC GO2 REGULATED	O2		CLOSE	EV	1	XXX-XX-
FC5984X	LV15 OP FC VACUUM	O2		OPEN	EV	1	XXX-XX-
FC5985X	LV15 CL FC VACUUM	O2		CLOSE	EV	1	XXX-XX-
FC5986X	LV16 CL FC GO2 SUPPLY	O2		CLOSE	EV	1	XXX-XX-
FC5987X	LV16 OP FC GO2 SUPPLY	O2		OPEN	EV	1	XXX-XX-
FC5988P	PT2 LO2 TANK VENT PRESS	O2	0	+1500	PSIG	1	--X-X--
FC5989P	PT3 FC GO2 PURGE PRESS	O2	0	+1500	PSIG	1	XXX-XX-
FC5990P	PT4 FC GN2 PURGE PRESS	O2	0	+1500	PSIG	1	XXX-XX-
FC5991X	LV1 CL H2 VAC PUMP OFF	H2		CLOSE	EV	1	XXX-XX-
FC5992X	LV2 OP FC PURGE VENT VAC	H2		OPEN	EV	1	XXX-XX-
FC5993X	LV2 CL FC PURGE VENT VAC	H2		CLOSE	EV	1	XXX-XX-
FC5994X	LV4 OP TANK RELIEF VAC	H2		OPEN	EV	1	-XX-XX-
FC5995X	LV4 CL TANK RELIEF VAC	H2		CLOSE	EV	1	-XX-XX-
FC5996X	LV13 OP TANK FILL VENT VAC	H2		OPEN	EV	1	-XX-XX-

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK
SUBSYSTEM - ELECTRICAL POWER

MEAS ID	MEASUREMENT DESCRIPTION		DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FC5997X	LV13 CL TANK FILL VENT VAC	H2		CLOSE	EV	1	-XX-XX-
FC5998X	PV11 CL TANK FILL VENT	H2		CLOSE	EV	1	--X-X--
FC5999X	PV11 OP TANK FILL VENT	H2		OPEN	EV	1	--X-X--
FC6000X	LV17 OP GO2/GN2 115 PSIA	O2		OPEN	EV	1	XXX-XX-
FC6001X	LV17 CL GO2/GN2 115 PSIA	O2		CLOSE	EV	1	XXX-XX-
FC6002X	LV18 OP GO2/GN2 900 PSIA	O2		OPEN	EV	1	XXX-XX-
FC6003X	LV18 CL GO2/GN2 900 PSIA	O2		CLOSE	EV	1	XXX-XX-
FC6004X	LV19 OP GN2 1500 PSIA	O2		OPEN	EV	1	XXX-XX-
FC6005X	LV19 CL GN2 1500 PSIA	O2		CLOSE	EV	1	XXX-XX-
FC6006X	LV20 OP GN2 115 PSIA	O2		OPEN	EV	1	XXX-XX-
FC6007X	LV20 CL GN2 115 PSIA	O2		CLOSE	EV	1	XXX-XX-
FC6008X	LV12 OP GH2 VENT TO ATMOS	H2		OPEN	EV	1	XXX-XX-
FC6009X	LV12 CL GH2 VENT TO ATMOS	H2		CLOSE	EV	1	XXX-XX-
FC6010X	PV10 CL FILL TANKS	H2		CLOSE	EV	1	--X----
FC6011X	PV10 OP CIRCULATE	H2		OPEN	EV	1	--X----
FC6012X	REPLACE FILTER FL1	H2		REPLACE	EV	1	--X-X--
FC6013X	LV17 OP GH2/GN2 115 PSIA	H2		OPEN	EV	1	XXX-XX-
FC6014X	LV17 CL GH2/GN2 115 PSIA	H2		CLOSE	EV	1	XXX-XX-
FC6015X	LV18 OP GH2/GN2 240 PSIA	H2		OPEN	EV	1	XXX-XX-
FC6016X	LV18 CL GH2/GN2 240 PSIA	H2		CLOSE	EV	1	XXX-XX-
FC6018X	LV14 CL FC GH2 REGULATED	H2		CLOSE	EV	1	XXX-XX-
FC6019X	LV15 OP FC VACUUM	H2		OPEN	EV	1	XXX-XX-
FC6020X	LV15 CL FC VACUUM	H2		CLOSE	EV	1	XXX-XX-
FC6021P	PT2 LH2 TANK VENT PRESS	H2	0	+ 500	PSIG	1	--X-X--
FC6022P	PT3 FC GH2 PURGE PRESS	H2	0	+ 500	PSIG	1	XXX-XX-
FC6023T	TT1 LH2 TEMPERATURE	H2	- 430	- 380	DEGF	1	--X----
FC6024T	TT1 LO2 TEMPERATURE	O2	- 320	- 220	DEGF	1	--X-X--
FC6030X	LV25 OP TANK VAC RELIEF	H2		OPEN	EV	1	-X---X-
FC6031X	LV25 CL TANK VAC RELIEF	H2		CLOSE	EV	1	-X---X-
FC6032X	LV25 OP TANK VAC RELIEF	O2		OPEN	EV	1	-X---X-
FC6033X	LV26 OP GN2 FACILITY SUPPLY	O2		OPEN	EV	1	-X---X-
FC6034X	LV26 CL GN2 FACILITY SUPPLY	O2		CLOSE	EV	1	-X---X-
FC6035X	LV25 CL TANK VAC RELIEF	O2		CLOSE	EV	1	-X---X-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - LAUNCH ESCAPE

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
CD0002X	LES ABORT INITIATE SIGNAL A		ABORT	EV	100	------X	
CD0023X	CM-SM SEPARATION RELAY CLOSE A		SEP	EV	1	------X	
CD0023X	CM-SM SEPARATION RELAY CLOSE A		SEP	EV	100	------X	
CD0024X	CM-SM SEPARATION RELAY CLOSE B		SEP	EV	10	------X	
CD0024X	CM-SM SEPARATION RELAY CLOSE B		SEP	EV	100	------X	
CD0037X	ELS SEQ START RELAY CLOSE A		START	EV	1	------X	
CD0037X	ELS SEQ START RELAY CLOSE A		START	EV	100	------X	
CD0038X	ELS SEQ START RELAY CLOSE B		START	EV	10	------X	
CD0038X	ELS SEQ START RELAY CLOSE B		START	EV	100	------X	
CD0044X	BOOSTER CUT-OFF SIG A		CUT	EV	1	-XXX-X-	
CD0045X	BOOSTER CUT-OFF SIG B		CUT	EV	1	-XXX-X-	
CD0062X	LES ABORT INITIATE SIGNAL B		ABORT	EV	100	------X	
CD0084X	MESC PYRO FIRING REL IND SAFE A		SAFE	EV	1	XXXX-X-	
CD0085X	MESC PYRO FIRING REL IND SAFE B		SAFE	EV	1	XXXX-X-	
CD0088X	MESC LOGIC SW IND SAFE		SAFE	EV	1	-XXX-X-	
CD0089X	MESC LOGIC SW IND ARM		ARM	EV	1	-XXX-X-	
CD0105X	TWR JETTISON A		JETT	EV	1	------X	
CD0106X	TWR JETTISON B		JETT	EV	1	------X	
CD0120X	CANARD DEPLOY A		DEPLOY	EV	1	------X	
CD0120X	CANARD DEPLOY A		DEPLOY	EV	10	------X	
CD0121X	CANARD DEPLOY B		DEPLOY	EV	1	------X	
CD0121X	CANARD DEPLOY B		DEPLOY	EV	10	------X	
CD0123X	SLA SEPARATION RELAY A		SEP	EV	1	------X	
CD0123X	SLA SEPARATION RELAY A		SEP	EV	50	------X	
CD0124X	SLA SEPARATION RELAY B		SEP	EV	1	------X	
CD0124X	SLA SEPARATION RELAY B		SEP	EV	50	------X	
CD0135X	EDS ABORT LOGIC OUTPUT A		ABORT	EV	200	------X	
CD0136X	EDS ABORT LOGIC OUTPUT B		ABORT	EV	200	------X	
CD0140X	DIRECT ULLAGE ON A		ON	EV	1	------X	
CD0141X	DIRECT ULLAGE ON B		ON	EV	1	------X	
CD0168X	RCS ACTIVATE ENABLE A		ARM	EV	1	------X	
CD0169X	RCS ACTIVATE ENABLE B		ARM	EV	1	------X	
CD0173X	CM RCS PRESS SIG A		PRESS	EV	1	------X	
CD0173X	CM RCS PRESS SIG A		PRESS	EV	100	------X	
CD0174X	CM RCS PRESS SIG B		PRESS	EV	1	------X	
CD0174X	CM RCS PRESS SIG B		PRESS	EV	100	------X	
CD0218X	MESC PYRO SWITCH IND SAFE		SAFE	EV	1	-XXX-X-	
CD0219X	MESC PYRO SWITCH IND ARM		ARM	EV	1	-XXX-X-	
CD0230X	FWD HS JETTISON A		JETT	EV	200	------X	SC103
CD0231X	FWD HS JETTISON B		JETT	EV	200	------X	SC103
CD0270X	CM RCS CONTROLLERS A AND B SAFE		SAFE	EV	1	XXXX-X-	
CD0320X	EDS UNSAFE A		UNSAFE	EV	1	-XXX-X-	
CD0321X	EDS UNSAFE B		UNSAFE	EV	1	-XXX-X-	
SD0352X	S/M JETTISON SAFE A		SAFE	EV	1	XXXX-X-	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - LAUNCH ESCAPE

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
SD0353X	S/M JETTISON SAFE B		SAFE	EV	1	XXXX-X-
CD0556X	MESC TD11 SYS A 3.0 SEC		END	EV	10	------X
CD0557X	MESC TD11 SYS B 3.0 SEC		END	EV	10	------X
CD0558X	MESC TD12 SYS A 3.0 SEC		END	EV	10	------X
CD0559X	MESC TD12 SYS B 3.0 SEC		END	EV	10	------X
CD0560X	MESC TD1 SYS A 30 MILLISEC		END	EV	200	------X
CD0561X	MESC TD1 SYS B 30 MILLISEC		END	EV	200	------X
CD0562X	MESC TD2 SYS A 30 MILLISEC		END	EV	200	------X
CD0563X	MESC TD2 SYS B 30 MILLISEC		END	EV	200	------X
CD0564X	MESC TD3 SYS A 0.1 SEC		END	EV	100	------X
CD0565X	MESC TD3 SYS B 0.1 SEC		END	EV	100	------X
CD0566X	MESC TD4 SYS A 0.1 SEC		END	EV	100	------X
CD0567X	MESC TD4 SYS B 0.1 SEC		END	EV	100	------X
CD0568X	MESC TD5 SYS A 11 SEC		END	EV	10	------X
CD0569X	MESC TD5 SYS B 11 SEC		END	EV	10	------X
CD0570X	MESC TD6 SYS A 11 SEC		END	EV	10	------X
CD0571X	MESC TD6 SYS B 11 SEC		END	EV	10	------X
CD0572X	MESC TD7 SYS A 3 SEC		END	EV	10	------X
CD0573X	MESC TD7 SYS B 3 SEC		END	EV	10	------X
CD0574X	MESC TD8 SYS A 3 SEC		END	EV	10	------X
CD0575X	MESC TD8 SYS B 3 SEC		END	EV	10	------X
CD0580X	MESC TD11 SYS A 1.7 SEC		END	EV	10	------X
CD0581X	MESC TD11 SYS B 1.7 SEC		END	EV	10	------X
CD0582X	MESC TD12 SYS A 1.7 SEC		END	EV	10	------X
CD0583X	MESC TD12 SYS B 1.7 SEC		END	EV	10	------X
CD0584X	MESC TD13 SYS A 0.8 SEC		END	EV	50	------X
CD0585X	MESC TD13 SYS B 0.8 SEC		END	EV	50	------X
CD0586X	MESC TD14 SYS A 0.8 SEC		END	EV	50	------X
CD0587X	MESC TD14 SYS B 0.8 SEC		END	EV	50	------X
CD0588X	MESC TD15 SYS A 1.0 SEC		END	EV	10	-X----X
CD0588X	MESC TD15 SYS A 1.0 SEC		END	EV	50	------X
CD0589X	MESC TD15 SYS B 1.0 SEC		END	EV	10	-X----X
CD0589X	MESC TD15 SYS B 1.0 SEC		END	EV	50	------X
CD0590X	MESC TD16 SYS A 1.0 SEC		END	EV	10	-X----X
CD0590X	MESC TD16 SYS A 1.0 SEC		END	EV	50	------X
CD0591X	MESC TD16 SYS B 1.0 SEC		END	EV	10	-X----X
CD0591X	MESC TD16 SYS B 1.0 SEC		END	EV	50	------X
CD0592X	MESC TD17 SYS A 0.4 SEC		END	EV	100	------X
CD0593X	MESC TD17 SYS B 0.4 SEC		END	EV	100	------X
CD0594X	MESC TD18 SYS A 0.4 SEC		END	EV	100	------X
CD0595X	MESC TD18 SYS B 0.4 SEC		END	EV	100	------X
CD0644X	MESC TD23 SYS A 1.7 SEC		END	EV	10	------X
CD0645X	MESC TD23 SYS B 1.7 SEC		END	EV	10	------X
CD0646X	MESC TD24 SYS A 1.7 SEC		END	EV	10	------X
CD0647X	MESC TD24 SYS B 1.7 SEC		END	EV	10	------X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - LAUNCH ESCAPE

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
SD0660X	SMJC Z2TD1 SYS A 2 SEC		END	EV	10	XXXX-X-	
SD0661X	SMJC Z2TD1 SYS B 2 SEC		END	EV	10	XXXX-X-	
SD0662X	SMJC Z2TD2 SYS A 2 SEC		END	EV	10	XXXX-X-	
SD0663X	SMJC Z2TD2 SYS B 2 SEC		END	EV	10	XXXX-X-	
SD0664X	SMJC Z3TD1 SYS A 5.5 SEC		END	EV	1	X------	
SD0664X	SMJC Z3TD1 SYS A 5.5 SEC		END	EV	10	--XX---	
SD0664X	SMJC Z3TD1 SYS A 5.5 SEC		END	EV	1	-X-----	
SD0664X	SMJC Z3TD1 SYS A 5.5 SEC		END	EV	10	-X---X-	
SD0665X	SMJC Z3TD1 SYS B 5.5 SEC		END	EV	1	X------	
SD0665X	SMJC Z3TD1 SYS B 5.5 SEC		END	EV	10	--XX---	
SD0665X	SMJC Z3TD1 SYS B 5.5 SEC		END	EV	1	-X-----	
SD0665X	SMJC Z3TD1 SYS B 5.5 SEC		END	EV	10	-X---X-	
SD0666X	SMJC Z3TD2 SYS A 5.5 SEC		END	EV	1	X------	
SD0666X	SMJC Z3TD2 SYS A 5.5 SEC		END	EV	10	--XX---	
SD0666X	SMJC Z3TD2 SYS A 5.5 SEC		END	EV	1	-X-----	
SD0666X	SMJC Z3TD2 SYS A 5.5 SEC		END	EV	10	-X---X-	
SD0667X	SMJC Z3TD2 SYS B 5.5 SEC		END	EV	1	X------	
SD0667X	SMJC Z3TD2 SYS B 5.5 SEC		END	EV	10	--XX---	
SD0667X	SMJC Z3TD2 SYS B 5.5 SEC		END	EV	1	-X-----	
SD0667X	SMJC Z3TD2 SYS B 5.5 SEC		END	EV	10	-X---X-	
AD0690X	LM/SLA LEG SEPARATION RELAY A		SEP	EV	1	------X	SC104 + SUBS
AD0690X					200	------X	SC103
AD0691X	LM/SLA LEG SEPARATION RELAY B		SEP	EV	1	------X	SC104 + SUBS
AD0691X					200	------X	SC103
AD0692X	LM/SLA UMB GUILLOTINE SEP RELAY A		SEP	EV	1	------X	
AD0693X	LM/SLA UMB GUILLOTINE SEP RELAY B		SEP	EV	1	------X	
AD0694X	LSSC TD1 SYSTEM A 30 MILLISECONDS		END	EV	200	------X	SC104 + SUBS
AD0695X	LSSC TD1 SYSTEM B 30 MILLISECONDS		END	EV	200	------X	SC104 + SUBS
AD0696X	LSSC TD2 SYSTEM A 30 MILLISECONDS		END	EV	200	------X	SC104 + SUBS
AD0697X	LSSC TD2 SYSTEM B 30 MILLISECONDS		END	EV	200	------X	SC104 + SUBS
CD1006X	LES MOTOR FIRE INITIATE A		FIRE	EV	10	------X	
CD1007X	LES MOTOR FIRE INITIATE B		FIRE	EV	10	------X	
CD1008X	PITCH CONTROL MOTOR FIRE RELAY A		FIRE	EV	10	------X	
CD1009X	PITCH CONTROL MOTOR FIRE RELAY B		FIRE	EV	10	------X	
CD1150X	PROBE RETRACT 1 RELAY A		RETRACT	EV	10	------X	SC104 + SUBS
CD1151X	PROBE RETRACT 1 RELAY B		RETRACT	EV	10	------X	SC104 + SUBS
CD1152X	PROBE RETRACT 2 RELAY A		RETRACT	EV	10	------X	SC104 + SUBS
CD1153X	PROBE RETRACT 2 RELAY B		RETRACT	EV	10	------X	SC104 + SUBS
CD1210X	LDEC M1 TD SYS A 30 MS		END	EV	200	------X	SC103 + SUBS
CD1211X	LDEC M2 TD SYS A 30 MS		END	EV	200	------X	SC103 + SUBS
CD1212X	LDEC M1 TD SYS B 30 MS		END	EV	200	------X	SC103 + SUBS
CD1213X	LDEC M2 TD SYS B 30 MS		END	EV	200	------X	SC103 + SUBS
GD5001X	TWR PITCH MOTOR INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5002X	TWR PITCH MOTOR INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	
GD5003X	TWR PITCH MOTOR INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5004X	TWR PITCH MOTOR INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - LAUNCH ESCAPE

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
GD5005X	TWR ESCAPE MOTOR INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5006X	TWR ESCAPE MOTOR INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GD5007X	TWR ESCAPE MOTOR INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5008X	TWR ESCAPE MOTOR INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GD5009X	TWR JETTISON MOTOR INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5010X	TWR JETTISON MOTOR INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GD5011X	TWR JETTISON MOTOR INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5012X	TWR JETTISON MOTOR INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-	
GD5029X	SC ADAPTER SEP INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5030X	SC ADAPTER SEP INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	
GD5031X	SC ADAPTER SEP INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5032X	SC ADAPTER SEP INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	
GD5053X	ACCESS ARM RETRACTED		RETRACT	EV	1	--XX---	
GD5054X	ACCESS ARM HOOKS CLOSED		CLOSED	EV	1	--XX---	
GD5055X	HOLD		HOLD	EV	1	--XX---	
GD5056X	FIRING COMMAND		START	EV	1	--XX---	
GD5057X	CUTOFF		CUTOFF	EV	1	--XX---	
GD5058X	CONFIDENCE LOOP (IU/SLA)		ON	EV	1	--XX---	
GD5061X	RF SILENCE REQUEST		ON	EV	1	--XX---	
GD5062X	EDS READY		READY	EV	1	--XX---	
GD5063X	LAUNCH VEHICLE READY		READY	EV	1	--XX---	
GD5064X	LET JETTISON SEQUENCE PULSE		CMD	EV	1	---X---	
GD5065X	LV TO SC SEPARATION COMMAND		CMD	EV	1	--XX---	
GD5068X	COMMIT		COMMIT	EV	1	--XX---	
GD5069X	UMBILICAL RELEASED IND		RELEASED	EV	1	--XX---	
GD5113X	+Y+Z TWR LEG EXP NUT INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5114X	+Y+Z TWR LEG EXP NUT INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5115X	+Y+Z TWR LEG EXP NUT INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5116X	+Y+Z TWR LEG EXP NUT INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5117X	+Y-Z TWR LEG EXP NUT INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5118X	+Y-Z TWR LEG EXP NUT INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5119X	+Y-Z TWR LEG EXP NUT INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5120X	+Y-Z TWR LEG EXP NUT INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5121X	-Y-Z TWR LEG EXP NUT INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5122X	-Y-Z TWR LEG EXP NUT INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5123X	-Y-Z TWR LEG EXP NUT INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5124X	-Y-Z TWR LEG EXP NUT INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5125X	-Y+Z TWR LEG EXP NUT INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5126X	-Y+Z TWR LEG EXP NUT INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5127X	-Y+Z TWR LEG EXP NUT INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5128X	-Y+Z TWR LEG EXP NUT INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-	
GD5200X	CANARD DEPLOY INIT A GO	NORM	GO	EV	1	-XXX-X-	
GD5201X	CANARD DEPLOY INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	
GD5202X	CANARD DEPLOY INIT B GO	NORM	GO	EV	1	-XXX-X-	
GD5203X	CANARD DEPLOY INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-	
GD5690X	SIVB/LM SEPARATION A INITIATE		INIT	EV	200	-----X	SC104 + SUBS
GD5691X	SIVB/LM SEPARATION B INITIATE		INIT	EV	200	-----X	SC104 + SUBS

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - EARTH IMPACT/RECOVERY

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CE0007X	BARO SW LOCK-IN RLY CLOSE A		CLOSE	EV	10	------X
CE0008X	BARO SW LOCK-IN RLY CLOSE B		CLOSE	EV	10	------X
CE0025X	BAROSWITCH S1 SYSTEM A		CLOSE	EV	10	------X
CE0026X	BAROSWITCH S3 SYSTEM A		CLOSE	EV	10	------X
CE0027X	BAROSWITCH S3 SYSTEM B		CLOSE	EV	10	------X
CE0029X	BAROSWITCH S1 SYSTEM B		CLOSE	EV	10	------X
CE0030X	BAROSWITCH S2 SYSTEM A		CLOSE	EV	10	------X
CE0031X	BAROSWITCH S2 SYSTEM B		CLOSE	EV	10	------X
CE0032X	BAROSWITCH S4 SYSTEM A		CLOSE	EV	10	------X
CE0033X	BAROSWITCH S4 SYSTEM B		CLOSE	EV	10	------X
CE0040X	ELS TIME DELAY TD1 SYS A 2 SEC		END	EV	10	------X
CE0041X	ELS TIME DELAY TD1 SYS B 2 SEC		END	EV	10	------X
CE0042X	ELS TIME DELAY TD2 SYS A 2 SEC		END	EV	10	------X
CE0043X	ELS TIME DELAY TD2 SYS B 2 SEC		END	EV	10	------X
CE0044X	ELS TIME DELAY TD3 SYS A 14 SEC		END	EV	10	------X
CE0045X	ELS TIME DELAY TD3 SYS B 14 SEC		END	EV	10	------X
CE0046X	ELS TIME DELAY TD4 SYS A 14 SEC		END	EV	10	------X
CE0047X	ELS TIME DELAY TD4 SYS B 14 SEC		END	EV	10	------X
CE0052X	FWD HS DRAG CHUTE C18S3 SAFE		SAFE	EV	1	------X
CE0053X	FWD HS DRAG CHUTE C18S1 SAFE		SAFE	EV	1	------X
CE0054X	FWD HS DRAG CHUTE C18S4 SAFE		SAFE	EV	1	------X
CE0055X	FWD HS DRAG CHUTE C18S2 SAFE		SAFE	EV	1	------X
CE0310X	ELS PYRO RELAY K1 SAFE A		SAFE	EV	1	XXXX-X-
CE0311X	ELS PYRO RELAY K2 SAFE A		SAFE	EV	1	XXXX-X-
CE0312X	ELS PYRO RELAY K3 SAFE A		SAFE	EV	1	XXXX-X-
CE0313X	ELS PYRO RELAY K4 SAFE A		SAFE	EV	1	XXXX-X-
CE0314X	ELS PYRO RELAY K1 SAFE B		SAFE	EV	1	XXXX-X-
CE0315X	ELS PYRO RELAY K2 SAFE B		SAFE	EV	1	XXXX-X-
CE0316X	ELS PYRO RELAY K3 SAFE B		SAFE	EV	1	XXXX-X-
CE0317X	ELS PYRO RELAY K4 SAFE B		SAFE	EV	1	XXXX-X-
GE5001X	FWD HT SHLD THRUSTER INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5002X	FWD HT SHLD THRUSTER INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5003X	FWD HT SHLD THRUSTER INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5004X	FWD HT SHLD THRUSTER INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5005X	DROGUE CHUTE 1 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5006X	DROGUE CHUTE 1 INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5007X	DROGUE CHUTE 1 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5008X	DROGUE CHUTE 1 INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5009X	DROGUE CHUTE RELEASE 1 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5010X	DROGUE CHUTE REL 1 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5011X	DROGUE CHUTE RELEASE 1 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5012X	DROGUE CHUTE REL 1 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5013X	PILOT CHUTE 1 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5014X	PILOT CHUTE 1 INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5015X	PILOT CHUTE 1 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5016X	PILOT CHUTE 1 INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5017X	PILOT CHUTE 2 INIT A GO	NORM	GO	EV	1	-XXX-X-

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - EARTH IMPACT/RECOVERY

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GE5018X	PILOT CHUTE 2 INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5019X	PILOT CHUTE 2 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5020X	PILOT CHUTE 2 INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5021X	PILOT CHUTE 3 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5022X	PILOT CHUTE 3 INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5023X	PILOT CHUTE 3 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5024X	PILOT CHUTE 3 INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5025X	MAIN CHUTE RELEASE INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5026X	MAIN CHUTE REL INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5027X	MAIN CHUTE RELEASE 1 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5028X	MAIN CHUTE REL 1 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5031X	UMBILICAL GUILLOTINE A GO	NORM	GO	EV	1	-XXX-X-
GE5032X	UMBILICAL GUILLOTINE A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5033X	UMBILICAL GUILLOTINE B GO	NORM	GO	EV	1	-XXX-X-
GE5034X	UMBILICAL GUILLOTINE B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5035X	TENSION TIE 1 BEAM 2 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5036X	TENSION TIE 1 BEAM 2 INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5037X	TENSION TIE 1 BEAM 2 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5038X	TENSION TIE 1 BEAM 2 INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5039X	TENSION TIE 2 BEAM 4 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5040X	TENSION TIE 2 BEAM 4 INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5041X	TENSION TIE 2 BEAM 4 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5042X	TENSION TIE 2 BEAM 4 INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5043X	TENSION TIE 3 BEAM 6 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5044X	TENSION TIE 3 BEAM 6 INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5045X	TENSION TIE 3 BEAM 6 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5046X	TENSION TIE 3 BEAM 6 INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5059X	DROGUE CHUTE 2A INIT GO	NORM	GO	EV	1	-XXX-X-
GE5060X	DROGUE CHUTE 2A INIT TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5061X	DROGUE CHUTE 2B INIT GO	NORM	GO	EV	1	-XXX-X-
GE5062X	DROGUE CHUTE 2B INIT TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GE5065X	FWD HT SHLD THRUSTER INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5066X	FWD HT SHLD THRUSTER INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5067X	FWD HT SHLD THRUSTER INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5068X	FWD HT SHLD THRUSTER INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GE5085X	DESCEND NO.1	OFF	ON	EV	1	-XXX-X-
GE5086X	DESCEND NO.2	OFF	ON	EV	1	-XXX-X-
GE5087X	FAST DESCEND	OFF	ON	EV	1	-XXX-X-
GE5088X	CLIMB	OFF	ON	EV	1	-XXX-X-
GE5089X	HOLD	OFF	ON	EV	1	-XXX-X-
GE5090X	BCD OUTPUT HUNDREDTHS 1	NA	NA	EV	1	-XXX-X-
GE5091X	BCD OUTPUT HUNDREDTHS 2	NA	NA	EV	1	-XXX-X-
GE5092X	BCD OUTPUT HUNDREDTHS 4	NA	NA	EV	1	-XXX-X-
GE5093X	BCD OUTPUT HUNDREDTHS 8	NA	NA	EV	1	-XXX-X-
GE5094X	BCD OUTPUT TENTHS 1	NA	NA	EV	1	-XXX-X-
GE5095X	BCD OUTPUT TENTHS 2	NA	NA	EV	1	-XXX-X-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - EARTH IMPACT/RECOVERY

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR FA ST PE	MDPMMMC SN3LSSO CY4 SO
GE5096X	BCD OUTPUT TENTHS 4	NA	NA	EV	1	-XXX-X-
GE5097X	BCD OUTPUT TENTHS 8	NA	NA	EV	1	-XXX-X-
GE5098X	BCD OUTPUT UNITS 1	NA	NA	EV	1	-XXX-X-
GE5099X	BCD OUTPUT UNITS 2	NA	NA	EV	1	-XXX-X-
GE5100X	BCD OUTPUT UNITS 4	NA	NA	EV	1	-XXX-X-
GE5101X	BCD OUTPUT UNITS 8	NA	NA	EV	1	-XXX-X-
GE5102X	BCD OUTPUT TENS 1	NA	NA	EV	1	-XXX-X-
GE5103X	BCD OUTPUT TENS 2	NA	NA	EV	1	-XXX-X-
GE5104X	BCD OUTPUT TENS 4	NA	NA	EV	1	-XXX-X-
GE5105X	BCD OUTPUT TENS 8	NA	NA	EV	1	-XXX-X-
GE5106X	POWER OFF	OFF	ON	EV	1	-XXX-X-
GE5107X	POWER ON	OFF	ON	EV	1	-XXX-X-
GE5108X	OVER TEMPERATURE WARNING	OFF	ON	EV	1	-XXX-X-
GE5110X	PURGE PRESSURE BELOW MINIMUM	OFF	ON	EV	1	-XXX-X-
GE5113X	MAIN CHUTE REL 2 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5114X	MAIN CHUTE REL 2 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5115X	MAIN CHUTE REL 2 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5116X	MAIN CHUTE REL 2 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5117X	MAIN CHUTE REL 3 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5118X	MAIN CHUTE REL 3 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5119X	MAIN CHUTE REL 3 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5120X	MAIN CHUTE REL 3 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5121X	DROGUE CHUTE REL 2 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5122X	DROGUE CHUTE REL 2 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5123X	DROGUE CHUTE REL 2 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5124X	DROGUE CHUTE REL 2 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5125X	CM DEADFACE SYS 1 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5126X	CM DEADFACE SYS 1 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5127X	CM DEADFACE SYS 1 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5128X	CM DEADFACE SYS 1 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5129X	CM DEADFACE SYS 2 INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5130X	CM DEADFACE SYS 2 INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5131X	CM DEADFACE SYS 2 INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5132X	CM DEADFACE SYS 2 INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5180X	FWD HT SHLD CHUTE INIT A GO	NORM	GO	EV	1	-XXX-X-
GE5181X	FWD HT SHLD CHUTE INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GE5182X	FWD HT SHLD CHUTE INIT B GO	NORM	GO	EV	1	-XXX-X-
GE5183X	FWD HT SHLD CHUTE INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
CF0074X	CO2 PP HI C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CF0074X	CO2 PP HI C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CF0075X	SUIT COMPRESSOR C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CF0075X	SUIT COMPRESSOR C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CF0076X	GLYCOL TEMP LO C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CF0076X	GLYCOL TEMP LO C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CF0077X	O2 FLOW HI C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CF0077X	O2 FLOW HI C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CF0135R	FLOWRATE MANIFOLD INLET TO SUIT1	0 +	0.2	PSID	1	X------	
CF0136R	FLOWRATE MANIFOLD INLET TO SUIT2	0 +	0.2	PSID	1	X------	
CF0137R	FLOWRATE MANIFOLD INLET TO SUIT3	0 +	0.2	PSID	1	X------	
CF0153T	TEMP COMPRESSOR INLET	+ 40 +	125	DEGF	1	X------	
CF0162T	TEMP COLD PLATE SYSTEM OUTLET	+ 55 +	150	DEGF	1	X------	
CF0163T	TEMP CABIN HEAT EXCH AIR OUT	+ 40 +	125	DEGF	1	X------	
CF0166P	PRESS GLYCOL PUMP INLET	0 +	50	PSIA	1	X------	
CF0168T	TEMP CABIN HT EXCHR GLYCOL IN	+ 40 +	150	DEGF	1	X------	
CF0170T	TEMP CABIN HT EXCHR GLYCOL OUT	+ 40 +	150	DEGF	1	X------	
CF0184T	TEMP CO2 ABSORBER OUTLET	+ 90 +	200	DEGF	1	X------	
SF0225T	TEMP ECS RADIATOR INLET	- 160 +	200	DEGF	1	X------	
CF0245T	TEMP O2 REGULATOR INLET	- 50 +	150	DEGF	1	X------	
CF0248R	FLOWRATE GLYCOL TO CABIN HT EX	0 +	1.0	PSID	1	X------	
SF0258R	FLOWRATE GLYCOL ECS RADIATOR IN	+ 80 +	240	LB/H	1	X------	
SF0271X	ECS RAD HTR OVLD S1 RLY TRIP PRI		TRIP	EV	1	XXXX-X-	
SF0272X	ECS RAD HTR OVLD S2 RLY TRIP PRI		TRIP	EV	1	XXXX-X-	
SF0273X	ECS RAD HTR OVLD S3 RLY TRIP SEC		TRIP	EV	1	XXXX-X-	
CF0280T	TEMP SECONDARY EVAP GLYCOL IN	+ 50 +	110	DEGF	1	X------	
CF0285R	FLOWRATE SECONDARY EVAP GLY. OUT	+ 150 +	300	LB/H	1	X------	
CF0290P	PRESS SECONDARY GLY. PUMP INLET	0 +	50	PSIA	1	X------	
CF0291T	TEMP SECONDARY GLYCOL PUMP IN	+ 50 +	110	DEGF	1	X------	
CF0380T	DEW POINT TEMP CABIN AIR	0 +	150	DEGF	1	X------	
CF0381P	PRESSURE CABIN	0 +	15	PSIA	1	X------	
CF0411T	TEMP SUIT HX GLYCOL OUTLET	+ 50 +	100	DEGF	1	X------	
CF0416T	TEMP SUIT HX SEC. GLYCOL OUT	+ 40 +	100	DEGF	1	X------	
CF0430T	TEMP SUIT OUTLET SUIT 1	+ 50 +	110	DEGF	1	X------	
CF0431T	TEMP SUIT OUTLET SUIT 2	+ 50 +	110	DEGF	1	X------	
CF0432T	TEMP SUIT OUTLET SUIT 3	+ 50 +	110	DEGF	1	X------	
CF0455T	TEMP URINE DUMP LINE EXIT	- 100 +	200	DEGF	1	X------	
CF0459T	TEMP URINE DUMP LINE	- 50 +	150	DEGF	1	X------	
CF0506T	TEMP G-N COMPUTER COLDPLATE IN	+ 40 +	150	DEGF	1	X------	
CF0509T	TEMP GLYCOL IMU OUTLET	+ 40 +	150	DEGF	1	X------	
CF0534P	PRESS IMU COLDPLATE INLET	0 +	75	PSIA	1	X------	
CF0536T	TEMP IMU GLYCOL INLET	+ 40 +	150	DEGF	1	X------	
CF0539T	TEMP GLYCOL PUMP OUTLET	+ 40 +	150	DEGF	1	X------	
CF0541R	FLOWRATE GLYCOL THROUGH IMU	+ 25 +	50	LB/H	1	X------	
CF0544T	TEMP GLYCOL PSA INLET	+ 40 +	150	DEGF	1	X------	
CF0545T	TEMP GLYCOL INVERTER INLET	+ 40 +	150	DEGF	1	X------	
CF0560T	TEMP FDAI 1 BASE	+ 40 +	150	DEGF	1	X------	
CF0571T	TEMP INVERTER 1 BASE	+ 40 +	150	DEGF	1	X------	
CF0572T	TEMP INVERTER 2 BASE	+ 40 +	150	DEGF	1	X------	
CF0573T	TEMP INVERTER 3 BASE	+ 40 +	150	DEGF	1	X------	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MOPMMMC SN3LSSO CY4 SO
CF0575T	TEMP S-BAND PWR AMPLIFIER BASE	+ 40	+ 150	DEGF	1	X------
CF0577T	TEMP VHF/AM TRANSCEIVER BASE	+ 40	+ 150	DEGF	1	X------
CF0580T	TEMP HF TRANSCEIVER BASE	+ 40	+ 150	DEGF	1	X------
CF0581T	TEMP PCM BASE	+ 40	+ 150	DEGF	1	X------
CF0583T	TEMP AUDIO CENTER BASE	+ 40	+ 150	DEGF	1	X------
CF0584T	TEMP CENTRAL TIMING BASE	+ 40	+ 150	DEGF	1	X------
CF0585T	TEMP PREMOD PROCESSOR BASE	+ 40	+ 150	DEGF	1	X------
CF0586T	TEMP SIGNAL CONDITIONER BASE	+ 40	+ 150	DEGF	1	X------
CF0587T	TEMP DATA STORAGE BASE	+ 40	+ 150	DEGF	1	X------
CF0592T	TEMP UNIFIED S-BAND EQUIP BASE	+ 40	+ 150	DEGF	1	X------
CF0593T	TEMP UP-DATA LINK BASE	+ 40	+ 150	DEGF	1	X------
SF0815T	TEMP OUT PRIMARY RAD PNL BAY 2-3	- 60	+ 100	DEGF	1	X------
SF0815T	TEMP OUT PRIMARY RAD PNL BAY 2-3	- 100	+ 200	DEGF	1	-----X-
SF0816T	TEMP OUT PRIMARY RAD PNL BAY 5-6	- 60	+ 100	DEGF	1	X------
SF0816T	TEMP OUT PRIMARY RAD PNL BAY 5-6	- 100	+ 200	DEGF	1	-----X-
SF0820T	TEMP SECONDARY RAD HEATER INLET	+ 30	+ 120	DEGF	1	X------
SF0821T	TEMP SECONDARY RAD OUT BAY 2-3	0	+ 120	DEGF	1	X------
SF0824T	TEMP SM SKIN, AFT STAG/SM INSUL	- 250	+ 200	DEGF	1	X------
SF0825T	TEMP RAD SKIN, FWD STAG/SM INSUL	- 160	+ 120	DEGF	1	X------
SF0826T	TEMP RAD SKIN, AFT STAG/SER. INS	- 160	+ 120	DEGF	1	X------
SF0827T	TEMP RAD SKIN, FWD STAG/SER. INS	- 160	+ 120	DEGF	1	X------
SF0828T	TEMP RAD SKIN, AFT SERIES/SM INS	- 160	+ 120	DEGF	1	X------
SF0829T	TEMP SM SKIN, FWD SERIES/SM INS	- 250	+ 200	DEGF	1	X------
SF0835P	DIFF PRESS PRIMARY RADIATOR	0	+ 15	PSID	1	X------
SF0836P	DIFF PRESS SECONDARY RADIATOR	0	+ 15	PSID	1	X------
SF0837R	FLOWRATE PRIMARY RAD PANEL 2-3	+ 50	+ 200	LB/H	1	X------
CF0841T	TEMP CONTROL ELECTRONICS BASE	+ 40	+ 150	DEGF	1	X------
CF0842T	TEMP DISPLAY ELECTRONICS BASE	+ 40	+ 150	DEGF	1	X------
CF0843T	TEMP GYRO COUPLER DISP ASSY BASE	+ 40	+ 150	DEGF	1	X------
CF0844T	TEMP TVC SERVO ASSY BASE	+ 40	+ 150	DEGF	1	X------
CF0845T	TEMP CAUTION AND WARNING BASE	+ 40	+ 150	DEGF	1	X------
CF0846T	TEMP GYRO 1 BASE	+ 40	+ 150	DEGF	1	X------
CF0847T	TEMP GYRO 2 BASE	+ 40	+ 150	DEGF	1	X------
CF0848T	TEMP FDAI 2 BASE	+ 40	+ 150	DEGF	1	X------
CF0849T	TEMP ENTRY MONITOR SYS BASE	+ 40	+ 150	DEGF	1	X------
SF0864T	TEMP TRANSPONDER BASE 1	+ 40	+ 150	DEGF	1	X------
SF0865T	TEMP TRANSPONDER BASE 2	+ 40	+ 150	DEGF	1	X------
FF5005P	SU ENCLOSURE PURGE PRESSURE	0	+ 10	IH2O	1	X-X--X-
FF5006Q	REFRIG UNIT H2O-GLYCOL FLOW	0	+ 5	GPM	1	XXX--X-
FF5008P	REFRIG UNIT ENCL PURGE PRESSURE	0	+ 10	IH2O	1	XXX--X-
FF5009X	GN2 PRESS-LOW SERVICE UNIT ENCL		LOW	EV	1	X-X--X-
FF5010X	GN2 PRESS-LOW REFRIG UNIT ENCL		LOW	EV	1	XXX--X-
FF5011T	REFRIG UNIT H2O-GLY SUPPLY TEMP	- 30	+ 70	DEGF	1	XXX--X-
FF5012P	REFRIG UNIT H2O-GLY SUPPLY PRESS	0	+ 500	PSIG	1	XXX--X-
FF5014T	REFRIG UNIT H2O-GLY RETURN TEMP	+ 25	+ 125	DEGF	1	XXX--X-
FF5015P	REFRIG UNIT H2O-GLY DIFF PRESS	0	+ 100	PSID	1	XXX--X-
FF5017P	CONTROL PANEL PURGE PRESSURE	0	+ 10	IH2O	1	-XXX-X-
FF5018X	ECS GLYCOL SOV OPEN INDICATION		OPEN	EV	1	XXXX-X-

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FF5019X	ECS BYPASS OPEN INDICATION		OPEN	EV	1	XXXX-X-
FF5020X	REMOTE CONTROL INDICATION		REMOTE	EV	1	XXXX-X-
FF5021X	LOCAL CONTROL INDICATION		LOCAL	EV	1	XXXX-X-
FF5022X	TRIM CONTROL SET ON INDICATION		ON	EV	1	XXXX-X-
FF5023X	TRIM UNIT PURGE PRESS LOW IND		LOW	EV	1	XXXX-X-
FF5024X	CONTROL PANEL PURGE PRESS LOW		LOW	EV	1	XXXX-X-
FF5025P	TRIM UNIT PURGE PRESSURE	0 +	10	IH2O	1	XXXX-X-
FF5026P	WATER-GLYCOL SUPPLY PRESSURE	15 +	90	PSIA	1	XXXX-X-
FF5027Q	WATER-GLYCOL FLOW	87.5 +	400	LB/H	1	XXXX-X-
FF5028P	WATER-GLYCOL DIFF PRESSURE	5 +	70	PSID	1	XXXX-X-
FF5029T	WATER-GLYCOL RETURN TEMP	5 +	125	DEGF	1	XXXX-X-
FF5030T	WATER-GLYCOL SUPPLY TEMP	5 +	50	DEGF	1	XXXX-X-
FF5034X	ECS GLYCOL SOV CLOSED-STANDBY		CLOSED	EV	1	--XX---
FF5035X	REMOTE CONTROL-UNIT NO 2		REMOTE	EV	1	--XX---
FF5036X	MAIN FLOWMETER-UNIT NO 2		ON	EV	1	--XX---
FF5037X	OVERPRESSURE-STANDBY		OVER	EV	1	--XX---
FF5038X	REFRIG UNIT ON-UNIT NO 2		ON	EV	1	--XX---
FF5039X	AUXILIARY FLOWMETER-UNIT NO 2		ON	EV	1	--XX---
FF5040X	OVERTEMPERATURE-STANDBY		OVER	EV	1	--XX---
FF5041X	CIRCULATION PUMP-UNIT NO 2		ON	EV	1	--XX---
FF5042X	LOCAL CONTROL-UNIT NO 2		LOCAL	EV	1	--XX---
FF5043X	AUXILIARY FLOWMETER-STANDBY		ON	EV	1	--XX---
FF5044X	W-G BACKUP PUMP-UNIT NO 2		ON	EV	1	--XX---
FF5045X	MAIN FLOWMETER-STANDBY		ON	EV	1	--XX---
FF5046Q	WATER-GLYCOL FLOW-UNIT NO 2	0 +	5	GPM	1	--XX---
FF5047P	REFRIG PURGE PRESSURE-UNIT NO 2	0	10	IH2O	1	--XX---
FF5048X	RU PURGE PRESSURE LOW-UNIT NO 2		LOW	EV	1	--XX---
FF5049T	W-G SUPPLY TEMP-UNIT NO 2	- 30 +	70	DEGF	1	--XX---
FF5050P	W-G SUPPLY PRESS-UNIT NO 2	0 +	500	PSIG	1	--XX---
FF5051T	W-G RETURN TEMP-UNIT NO 2	+25 +	125	DEGF	1	--XX---
FF5052P	W-G DIFF PRESSURE-UNIT NO 2	0 +	100	PSID	1	--XX---
FF5053P	CONT PANEL PURGE PRESS-STANDBY	0 +	10	IH2O	1	--XX---
FF5054X	ECS GLYCOL SOV OPEN-STANDBY		OPEN	EV	1	--XX---
FF5055X	ECS BYPASS OPEN-STANDBY		OPEN	EV	1	--XX---
FF5056X	REMOTE CONTROL-STANDBY		REMOTE	EV	1	--XX---
FF5057X	LOCAL CONTROL-STANDBY		LOCAL	EV	1	--XX---
FF5058X	TRIM CONTROL SET ON-STANDBY		ON	EV	1	--XX---
FF5059X	TRIM UNIT PURGE LOW-STANDBY		LOW	EV	1	--XX---
FF5060X	CONT PANEL PURGE LOW-STANDBY		LOW	EV	1	--XX---
FF5061P	TRIM UNIT PURGE PRESS-STANDBY	0 +	10	IH2O	1	--XX---
FF5062P	W-G SUPPLY PRESSURE-STANDBY	15 +	90	PSIA	1	--XX---
FF5063Q	W-G FLOW-STANDBY	87.5	400	LB/H	1	--XX---
FF5064P	W-G DIFF PRESSURE-STANDBY	0 +	70	PSID	1	--XX---
FF5065T	W-G RETURN TEMP-STANDBY	5 +	125	DEGF	1	--XX---
FF5066T	W-G SUPPLY TEMP-STANDBY	5 +	60	DEGF	1	--XX---
FF5300X	REMOTE CONTROL-UNIT NO 1		REMOTE	EV	1	--XX---
FF5301X	MAIN FLOWMETER-UNIT NO 1		ON	EV	1	--XX---
FF5302X	REFRIG UNIT ON-UNIT NO 1		ON	EV	1	---X---

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
FF5303X	AUXILIARY FLOWMETER-UNIT NO 1		ON	EV	1	--XX---	
FF5304X	CIRCULATION PUMP-UNIT NO 1		ON	EV	1	--XX---	
FF5305X	LOCAL CONTROL-UNIT NO 1		LOCAL	EV	1	--XX---	
FF5306X	W-G BACKUP PUMP-UNIT NO 1		ON	EV	1	--XX---	
FF5307Q	WATER-GLYCOL FLOW-UNIT NO 1	0 +	5	GPM	1	--XX---	
FF5308P	REFRIG PURGE PRESSURE-UNIT NO 1	0 +	10	IH2O	1	--XX---	
FF5309X	RU PURGE PRESSURE LOW-UNIT NO 1		LOW	EV	1	--XX---	
FF5310T	W-G SUPPLY TEMP-UNIT NO 1	- 30 +	70	DEGF	1	--XX---	
FF5311P	W-G SUPPLY PRESS-UNIT NO 1	0 +	500	PSIG	1	--XX---	
FF5312T	W-G RETURN TEMP-UNIT NO 1	+ 25 +	125	DEGF	1	--XX---	
FF5313P	W-G DIFF PRESSURE-UNIT NO 1	0 +	100	PSID	1	--XX---	
GF5316X	CM TUNNEL PRESS INIT A GO	NORM	GO	EV	1	-XX--X-	SC101
GF5317X	CM TUNNEL PRESS INIT A TRANS	NORM	NO-GO	EV	1	-XX--X-	SC101
GF5318X	CM TUNNEL PRESS INIT B GO	NORM	GO	EV	1	-XX--X-	SC101
GF5319X	CM TUNNEL PRESS INIT B TRANS	NORM	NO-GO	EV	1	-XX--X-	SC101
FF5320P	MSOB ALTITUDE CHAMBER PRESSURE	0 +	15	PSIA	1	-----X-	
FF5800X	ECS GLYCOL SOV CLOSED INDICATION		CLOSED	EV	1	XXXX-X-	
FF5801X	REMOTE CONTROL INDICATION		REMOTE	EV	1	XXX--X-	
FF5802X	MAIN FLOWMETER INDICATION		ON	EV	1	XXX--X-	
FF5803X	OVER PRESSURE INDICATION		OVER	EV	1	XXXX-X-	
FF5804X	SERVICE SET ON INDICATION		ON	EV	1	X------	
FF5805X	AUXILIARY FLOWMETER INDICATION		ON	EV	1	XXX--X-	
FF5806X	OVER TEMPERATURE INDICATION		OVER	EV	1	XXXX-X-	
FF5807X	CIRCULATION PUMP INDICATION		ON	EV	1	XXX--X-	
FF5808X	LOCAL CONTROL INDICATION		LOCAL	EV	1	XXX--X-	
FF5809X	AUXILIARY FLOWMETER INDICATION		ON	EV	1	XXXX-X-	
FF5810X	WATER-GLYCOL BACKUP PUMP IND		ON	EV	1	XXX--X-	
FF5811X	MAIN FLOWMETER INDICATION		ON	EV	1	XXXX-X-	

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - GUIDANCE, NAVIGATION AND CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMNC SN3LSSO CY4 SO
CG1020V	+14V CMC SUPPLY DC LEVEL	0	+ 20	VDC	1	------X
CG1021V	+14V CMC SUPPLY NOISE RMS	0	1.0	VRMS	1	------X
CG1022X	+14V CMC SUPPLY NOISE PEAKS		GLTCH	EV	10	------X
CG1030V	+4V CMC SUPPLY DC LEVEL	0	5	VDC	1	------X
CG1031V	+4V CMC SUPPLY NOISE RMS	0	1.0	VRMS	1	------X
CG1032X	+4V CMC SUPPLY NOISE PEAKS		GLTCH	EV	10	------X
CG1042V	+120 VDC PIPA SUPPLY NOISE RMS	0	1.5	VRMS	1	------X
CG1043X	+120 VDC PIPA SUPPLY NOISE PEAKS		GLTCH	EV	10	------X
CG1051V	+20 VDC PIPA SUPPLY DC LEVEL	0	+ 25	VDC	1	------X
CG1052V	-20 VDC PIPA SUPPLY DC LEVEL	0	- 25	VDC	1	------X
CG1053V	+20 VDC PIPA SUPPLY NOISE RMS	0	1.0	VRMS	1	------X
CG1070V	+4 VDC CDU SUPPLY DC LEVEL	0	+ 5	VDC	1	------X
CG1071V	+4 VDC CDU SUPPLY NOISE RMS	0	1.0	VRMS	1	------X
CG1072X	+4 VDC CDU SUPPLY NOISE PEAKS		GLTCH	EV	10	------X
CG1100V	-28 VDC SUPPLY DC LEVEL	0	- 35	VDC	1	------X
CG1202V	IMU 28V .8KC 5 PCT -90 DEG RMS	0	33.6	VRMS	1	------X
CG1203V	IMU 28V .8KC 5 PCT 0 DEG RMS	0	33.6	VRMS	1	------X
CG1207B	PH DIFF IMU 5 PCT 0 DEG -90 DEG	- 120	- 60	DEG	1	------X
CG1211V	OPTX 28V .8KC 1 PCT 0 DEG RMS	0	33.6	VRMS	1	------X
CG1212V	OPTX 28V .8KC 5 PCT -90 DEG RMS	0	33.6	VRMS	1	------X
CG1220B	PH DIFF OPTX 1 PCT IMU 1 PCT	- 20	+ 20	DEG	1	------X
CG1336B	PH DIFF 3.2 KC 28V SUP CMC SYNC	- 20	+ 20	DEG	1	------X
CG1500V	+28V IMU OPERATE BUS DC LEVEL	0	+ 35	VDC	1	------X
CG1501V	+28V IMU OPERATE BUS NOISE RMS	0	1.0	VRMS	1	------X
CG1502X	+28V IMU OPERATE BUS NOISE PEAKS		GLTCH	EV	10	------X
CG1510V	+28V IMU STANDBY BUS DC LEVEL	0	+ 35	VDC	1	------X
CG1511V	+28V IMU STANDBY BUS NOISE RMS	0	1.0	VRMS	1	------X
CG1512X	+28V IMU STANDBY BUS NOISE PEAKS		GLTCH	EV	10	------X
CG1520V	+28V CMC OPERATE BUS DC LEVEL	0	+ 35	VDC	1	------X
CG1521V	+28V CMC OPERATE BUS NOISE RMS	0	2.0	VRMS	1	------X
CG1522X	+28V CMC OPERATE BUS NOISE PEAKS		GLTCH	EV	10	------X
CG1530V	+28V OPTX OPERATE BUS DC LEVEL	0	+ 35	VDC	1	------X
CG1531V	+28V OPTX OPERATE BUS NOISE RMS	0	2.0	VRMS	1	------X
CG1532X	+28V OPTX OPERATE BUS NOISE PEAK		GLTCH	EV	10	------X
CG2108V	IG SERVO ERROR QUADRATURE	- 1.2	+ 1.2	VRMS	1	------X
CG2117V	IGA SERVO ERROR IN PHASE	- 1.2	+ 1.2	VRMS	10	------X
CG2117V					400	------X
CG2120C	IG TORQUE MOTOR CURRENT	- 1.0	+ 1.0	AMP	10	------X
CG2120C					400	------X
CG2138V	MG SERVO ERROR QUADRATURE	- 1.2	+ 1.2	VRMS	1	------X
CG2147V	MGA SERVO ERROR IN PHASE	- 1.2	+ 1.2	VRMS	10	------X
CG2147V					400	------X
CG2150C	MG TORQUE MOTOR CURRENT	- 1.0	+ 1.0	AMP	10	------X
CG2150C					400	------X
CG2168V	OG SERVO ERROR QUADRATURE	- 1.2	+ 1.2	VRMS	1	------X
CG2177V	OGA SERVO ERROR IN PHASE	- 1.2	+ 1.2	VRMS	10	------X
CG2177V					400	------X
CG2180C	OG TORQUE MOTOR CURRENT	- 1.0	+ 1.0	AMP	10	------X
CG2180C					400	------X

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - GUIDANCE, NAVIGATION AND CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
CG2219V	PITCH ATT ERROR-CDU DAC OUT	-16.9	+16.9	DEG	10	------X	
CG2219V					400	------X	
CG2220V	IGA CDU FINE ERROR	0	1.5	VRMS	10	------X	
CG2220V					400	------X	
CG2221V	IGA CDU COARSE ERROR	0	5.0	VRMS	1	------X	
CG2249V	YAW ATT ERROR-CDU DAC OUT	-16.9	+16.9	DEG	10	------X	
CG2249V					400	------X	
CG2250V	MGA CDU FINE ERROR	0	1.5	VRMS	10	------X	
CG2250V					400	------X	
CG2251V	MGA CDU COARSE ERROR	0	5.0	VRMS	1	------X	
CG2279V	ROLL ATT ERROR-CDU DAC OUT	-16.9	+16.9	DEG	10	------X	
CG2279V					400	------X	
CG2280V	OGA CDU FINE ERROR	0	1.5	VRMS	10	------X	
CG2280V					400	------X	
CG2281V	OGA CDU COARSE ERROR	0	5.0	VRMS	1	------X	
CG2301T	IRIG TEMPERATURE	+ 123	+ 143	DEGF	1	------X	2TV-1,SC101
CG2302X	IMU HEATER CURRENT	ON	OFF	EV	10	------X	
CG2303X	IMU BLOWER CURRENT	ON	OFF	EV	1	------X	
CG3011V	TRUNNION CDU FINE ERROR	0	+ 1.5	VRMS	10	------X	
CG3011V					400	------X	
CG3021V	SHAFT CDU FINE ERROR	0	+ 1.5	VRMS	10	------X	
CG3021V					400	------X	
CG3117V	SXT SHAFT SERVO ERROR IN PH	- 2.0	+ 2.0	VRMS	10	------X	
CG3117V					400	------X	
CG3118V	SXT TRUNNION SERVO ERROR IN PH	- 2.0	+ 2.0	VRMS	10	------X	
CG3118V					400	------	
CG3140V	SXT SHAFT TACHOMETER OUTPUT	- 5.0	+ 5.0	VRMS	10	------X	
CG3140V					400	------X	
CG3145V	SXT SHAFT MTR CONTROL WINDING	- 5.0	+ 5.0	VRMS	10	------X	
CG3150V	SXT TRUNNION TACHOMETER OUTPUT	- 5.0	+ 5.0	VRMS	10	------X	
CG3150V					400	------X	
CG3155V	SXT TRUNNION MTR CONTROL WINDING	- 5.0	+ 5.0	VRMS	10	------X	
CG3160V	SCT SHAFT TACHOMETER OUTPUT	- 5.0	+ 5.0	VRMS	10	------X	
CG3160V					400	------X	
CG3170V	SCT TRUNNION TACHOMETER OUTPUT	- 2.0	+ 2.0	VRMS	10	------X	
CG3170V					400	------X	
CG4300T	CMC TEMP	+ 32	+ 136	DEGF	1	------X	
GG5001X	TEMPERATURE OUT OF LIMIT		OT	EV	1	--XX---	
GG5002X	PTC INPUT POWER FAIL		FAIL	EV	1	--XX---	
CG5043X	CMC C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CG5043X	CMC C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CG5044X	ISS C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CG5044X	ISS C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CG6020T	PIPA CALIBRATION MODULE TEMP	+ 32	+ 136	DEGF	1	------X	
CG6021T	IMU 800 CPS 5 PCT TEMP (PSA)	+ 32	+ 136	DEGF	1	------X	
CG8200T	TEMP NAV BASE IMU PAD	0	+ 150	DEGF	1	X------	
CG8253T	TEMP PSA LOC 1	+ 50	+ 150	DEGF	1	X------	
CG8254T	TEMP PSA LOC 2	+ 50	+ 150	DEGF	1	X------	
CG8255T	TEMP PSA LOC 3	+ 50	+ 150	DEGF	1	X------	
CG8259T	TEMP CMC LOC 1	+ -50	+ 150	DEGF	1	X------	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - GUIDANCE, NAVIGATION AND CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CG8260T	TEMP CMC LOC 2	+ 50	+ 150	DEGF	1	X------
CG8261T	TEMP CMC LOC 3	+ 50	+ 150	DEGF	1	X------
CG8265T	TEMP X PIPA	+ 50	+ 150	DEGF	1	X------
CG8266T	TEMP Y PIPA	+ 50	+ 150	DEGF	1	X------
CG8267T	TEMP Z PIPA	+ 50	+ 150	DEGF	1	X------
CG8271T	TEMP CDU LOC 1	+ 50	+ 150	DEGF	1	X------
CG8272T	TEMP CDU LOC 2	+ 50	+ 150	DEGF	1	X------
CG8273T	TEMP CDU LOC 3	+ 50	+ 150	DEGF	1	X------
CG8277T	TEMP SEXTANT STRUCTURE LOC 1	0	+ 200	DEGF	1	X------
CG8278T	TEMP SEXTANT STRUCTURE LOC 2	0	+ 200	DEGF	1	X------
CG8279T	TEMP SEXTANT STRUCTURE LOC 3	0	+ 200	DEGF	1	X------
CG9010V	PITCH ATT ERR-CDU DAC OUT TO IU	-16.9	+16.9	DEG	1	-XXX-X-
CG9011V	YAW ATT ERR-CDU DAC OUT TO IU	-16.9	+16.9	DEG	1	-XXX-X-
CG9012V	ROLL ATT ERR-CDU DAC OUT TO IU	-16.9	+16.9	DEG	1	-XXX-X-
CG9015X	XLUNAR INJECTION SIGNAL TO IU		INJECT	EV	1	-X-X-X-
CG9016X	S/C CONT OF SATURN SIGNAL TO IU		CONT	EV	1	-XXX-X-
CG9017X	SIVB IGN SEQ START SIGNAL TO IU		START	EV	1	-XXX-X-
CG9018X	SIVB ENGINE CUTOFF SIGNAL TO IU		CUT	EV	1	-XXX-X-

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - STABILIZATION AND CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MOPMMMC SN3LSSO CY4 SO	
CH3521V	SCS TVC TOTAL ERROR PITCH	- 4	+ 4	VDC	10	-----X	
CH3521V	SCS TVC TOTAL ERROR PITCH	- 12	+ 12	VDC	100	-----X	
CH3522V	SCS TVC TOTAL ERROR YAW	- 4	+ 4	VDC	10	-----X	
CH3522V	SCS TVC TOTAL ERROR YAW	- 12	+ 12	VDC	100	-----X	
CH3523V	SCS TVC TOTAL ERROR PITCH NULL	- 0.3	+ 0.3	VDC	10	-----X	
CH3523V	SCS TVC TOTAL ERROR PITCH NULL	- 1.7	+ 1.7	VDC	10	-----X	
CH3524V	SCS TVC TOTAL ERROR YAW NULL	- 0.3	+ 0.3	VDC	10	-----X	
CH3524V	SCS TVC TOTAL ERROR YAW NULL	- 1.7	+ 1.7	VDC	10	-----X	
CH3531V	SCS TVC TOTAL ERROR PITCH MAX	- 10	+ 10	VDC	10	-----X	
CH3532V	SCS TVC TOTAL ERROR YAW MAX	- 10	+ 10	VDC	10	-----X	
CH3568X	BMAG 1 TEMP C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CH3568X	BMAG 1 TEMP C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CH3569X	BMAG 2 TEMP C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CH3569X	BMAG 2 TEMP C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CH3648H	PITCH BMAG 1 ATTITUDE NULL	-1.33	+1.33	DEG	10	-----X	
CH3648H	PITCH BMAG 1 ATTITUDE NULL	-1.33	+1.33	DEG	100	-----X	
CH3648H	PITCH BMAG 1 ATTITUDE NULL	- 2.2	+ 2.2	DEG	100	-----X	SC101
CH3649H	YAW BMAG 1 ATTITUDE NULL	-1.33	+1.33	DEG	10	-----X	
CH3649H	YAW BMAG 1 ATTITUDE NULL	-1.33	+1.33	DEG	100	-----X	
CH3649H	YAW BMAG 1 ATTITUDE NULL	- 2.2	+ 2.2	DEG	100	-----X	SC101
CH3650H	ROLL BMAG 1 ATTITUDE NULL	-1.33	+1.33	DEG	10	-----X	
CH3650H	ROLL BMAG 1 ATTITUDE NULL	- 2.2	+ 2.2	DEG	10	-----X	SC101
CH3651R	PITCH BMAG 2 ATTITUDE NULL	- 2.4	+ 2.4	DEG/S	10	-----X	
CH3651R	PITCH BMAG 2 ATTITUDE NULL	- 2.4	+ 2.4	DEG/S	100	-----X	
CH3651R	PITCH BMAG 2 ATTITUDE NULL	- 5.0	+ 5.0	DEG/S	100	-----X	SC101
CH3652R	YAW BMAG 2 ATTITUDE NULL	- 2.4	+ 2.4	DEG/S	10	-----X	
CH3652R	YAW BMAG 2 ATTITUDE NULL	- 2.4	+ 2.4	DEG/S	100	-----X	
CH3652R	YAW BMAG 2 ATTITUDE NULL	- 5.0	+ 5.0	DEG/S	100	-----X	SC101
CH3653R	ROLL BMAG 2 ATTITUDE NULL	- 2.4	+ 2.4	DEG/S	10	-----X	
CH3653R	ROLL BMAG 2 ATTITUDE NULL	- 5.0	+ 5.0	DEG/S	10	-----X	SC101
CH3666C	TVC PITCH DIFF CLUTCH CURRENT	-.969	+.969	AMPS	200	-----X	
CH3666C	TVC PITCH DIFF CLUTCH CURRENT	-.969	+.969	AMPS	50	-----X	
CH3667C	TVC YAW DIFF CLUTCH CURRENT	-.969	+.969	AMPS	200	-----X	
CH3667C	TVC YAW DIFF CLUTCH CURRENT	-.969	+.969	AMPS	50	-----X	
CH3742R	PITCH RJ SUMMING AMP OUTPUT	-21.6	+21.6	DEG/S	10	-----X	
CH3743R	YAW RJ SUMMING AMP OUTPUT	-21.6	+21.6	DEG/S	10	-----X	
CH3744R	ROLL RJ SUMMING AMP OUTPUT	-21.6	+21.6	DEG/S	10	-----X	
CH3760X	+28 VDC BUS A TO PITCH 1 CLUTCH	OFF	ON	EV	1	-----X	
CH3761X	+28 VDC BUS A TO YAW 1 CLUTCH	OFF	ON	EV	1	-----X	
CH3762X	+28 VDC BUS B TO PITCH 2 CLUTCH	OFF	ON	EV	1	-----X	
CH3763X	+28 VDC BUS B TO YAW 2 CLUTCH	OFF	ON	EV	1	-----X	
CH3770H	ROT CONTROL 1 PITCH TRANSDUCER	-11.25	+11.25	DEG	10	-----X	
CH3771H	ROT CONTROL 1 YAW TRANSDUCER	-11.25	+11.25	DEG	10	-----X	

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - STABILIZATION AND CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CH3772H	ROT CONTROL 1 ROLL TRANSDUCER	-11.25	+11.25	DEG	10	------X
CH3773H	ROT CONTROL 2 PITCH TRANSDUCER	-11.25	+11.25	DEG	10	------X
CH3774H	ROT CONTROL 2 YAW TRANSDUCER	-11.25	+11.25	DEG	10	------X
CH3775H	ROT CONTROL 2 ROLL TRANSDUCER	-11.25	+11.25	DEG	10	------X
CH3786R	PITCH RJ SUM AMP NULL MIDCOURSE	-0.15	+0.15	DEG/S	10	------X
CH3787R	PITCH RJ SUM AMP NULL ENTRY	-0.33	+0.33	DEG/S	10	------X
CH3788R	YAW RJ SUM AMP NULL MIDCOURSE	-0.15	+0.15	DEG/S	10	------X
CH3789R	YAW RJ SUM AMP NULL ENTRY	-0.33	+0.33	DEG/S	10	------X
CH3790R	ROLL RJ SUM AMP NULL MIDCOURSE	-0.15	+0.15	DEG/S	10	------X
CH3791R	ROLL RJ SUM AMP NULL ENTRY	-0.33	+0.33	DEG/S	10	------X
CH3793X	SOL DRIVER -4 VDC SUPPLY NO 1	OFF	ON	EV	10	------X
CH3794X	SOL DRIVER -4 VDC SUPPLY NO 2	OFF	ON	EV	10	------X
CH3921R	GIMBAL VEL FBK YAW NO 2	-13.1	+13.1	DEG/S	200	------X
CH3931R	GIMBAL VEL FBK YAW NO 1	-13.1	+13.1	DEG/S	200	------X
CH3933R	GIMBAL VEL FBK PITCH NO 1	-13.1	+13.1	DEG/S	200	------X
CH3957R	GIMBAL VEL FBK PITCH NO 2	-13.1	+13.1	DEG/S	200	------X

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - CREW EQUIPMENT

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CJ0010T	TEMP SUIT 1 INLET	+ 30	+130	DEGF	1	X------
CJ0011T	TEMP SUIT 2 INLET	+ 30	+130	DEGF	1	X------
CJ0012T	TEMP SUIT 3 INLET	+ 30	+130	DEGF	1	X------
CJ0020P	PRESSURE SUIT 1	0	+15	PSIA	1	X------
CJ0021P	PRESSURE SUIT 2	0	+15	PSIA	1	X------
CJ0022P	PRESSURE SUIT 3	0	+15	PSIA	1	X------
CJ0040P	PARTIAL PRESSURE CO2 SUIT 1	0	+20	MMHG	1	X------
CJ0041P	PARTIAL PRESSURE CO2 SUIT 2	0	+20	MMHG	1	X------
CJ0042P	PARTIAL PRESSURE CO2 SUIT 3	0	+20	MMHG	1	X------
CJ0054T	TEMP ASTRO 1 ORAL	+95	+105	DEGF	1	X------
CJ0055T	TEMP ASTRO 2 ORAL	+95	+105	DEGF	1	X------
CJ0056T	TEMP ASTRO 3 ORAL	+95	+105	DEGF	1	X------
CJ0060J	EKG COMMANDER LH COUCH	+ 0.1	+ 5	MVDC	200	X------
CJ0061J	EKG CMD MODULE PILOT CTR COUCH	+ 0.1	+ 5	MVDC	200	X------
CJ0062J	EKG LUNAR MODULE PILOT RH COUCH	+ 0.1	+ 5	MVDC	200	X------
CJ0063J	EKG AXIS 2 COMMANDER LH COUCH	- 0.1	+ 5	MVDC	200	X------
CJ0064J	EKG AXIS 2 CM PILOT CTR COUCH	- 0.1	+ 5	MVDC	200	X------
CJ0065J	EKG AXIS 2 LM PILOT RH COUCH	- 0.1	+ 5	MVDC	200	X------
CJ0120X	BAROSWITCH 1 POSITION ASTRO 1	OPEN	CLOSE	EV	1	X------
CJ0121X	BAROSWITCH 1 POSITION ASTRO 2	OPEN	CLOSE	EV	1	X------
CJ0122X	BAROSWITCH 1 POSITION ASTRO 3	OPEN	CLOSE	EV	1	X------
CJ0123X	BAROSWITCH 2 POSITION ASTRO 1	OPEN	CLOSE	EV	1	X------
CJ0124X	BAROSWITCH 2 POSITION ASTRO 2	OPEN	CLOSE	EV	1	X------
CJ0125X	BAROSWITCH 2 POSITION ASTRO 3	OPEN	CLOSE	EV	1	X------
CJ0126X	BAROSWITCH 3 POSITION ASTRO 1	OPEN	CLOSE	EV	1	X------
CJ0127X	BAROSWITCH 3 POSITION ASTRO 2	OPEN	CLOSE	EV	1	X------
CJ0128X	BAROSWITCH 3 POSITION ASTRO 3	OPEN	CLOSE	EV	1	X------
CJ0143Q	HUMIDITY SUIT 1 OUTLET	0	+ 150	DEGF	1	X------
CJ0144Q	HUMIDITY SUIT 2 OUTLET	0	+ 150	DEGF	1	X------
CJ0145Q	HUMIDITY SUIT 3 OUTLET	0	+ 150	DEGF	1	X------
CJ0152P	PARTIAL PRESSURE O2 SUIT 1	0	+ 20	PSIA	1	X------
CJ0153P	PARTIAL PRESSURE O2 SUIT 2	0	+ 20	PSIA	1	X------
CJ0154P	PARTIAL PRESSURE O2 SUIT 3	0	+ 20	PSIA	1	X------
CJ0200R	RESP RATE COMMANDER LH COUCH	- 5	+ 5	CHMS	200	X------
CJ0201R	RESP RATE CM PILOT CTR COUCH	- 5	+ 5	CHMS	200	X------
CJ0202R	RESP RATE LM PILOT RH COUCH	- 5	+ 5	CHMS	200	X------

CK1071X	C/W GSE MON	DET	EV	1	-X----- SC107 + SUBS
CK1071X	C/W GSE MON	DET	EV	1	---X-X- SC103 + SUBS

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
SP0005T	TEMP OXIDIZER ENG FEED LINE	- 50	+ 150	DEGF	1	X------	
SP0008T	TEMP FUEL ENG FEED LINE	- 50	+ 150	DEGF	1	X------	
SP0009P	PRESS MAIN VLV ENG OXID IN	0	+ 300	PSIA	1	-X-----	
SP0010P	PRESS MAIN VLV ENG FUEL IN	0	+ 300	PSIA	1	-X-----	
SP0030X	HE ISOLATION VALVE 1	CLOSE	OPEN	EV	10	-X-----	
SP0030X	HE ISOLATION VALVE 1	CLOSE	OPEN	EV	1	XXXX-X-	
SP0031X	HE ISOLATION VALVE 2	CLOSE	OPEN	EV	10	-X-----	
SP0031X	HE ISOLATION VALVE 2	CLOSE	OPEN	EV	1	XXXX-X-	
SP0040T	TEMP MAIN VLV ENGINE FUEL IN	0	+ 200	DEGF	1	X------	
SP0041T	TEMP MAIN VLV ENGINE OXIDIZER IN	0	+ 200	DEGF	1	X------	
SP0080T	TEMP GIMBAL RING AFT FACE LOC 1	- 100	+ 200	DEGF	1	X------	
SP0081T	TEMP GIMBAL RING AFT FACE LOC 2	- 100	+ 200	DEGF	1	X------	
SP0082T	TEMP GIMBAL RING AFT FACE LOC 3	- 100	+ 200	DEGF	1	X------	SC107 + SUBS
SP0126X	SPS FLANGE TEMP HI C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0126X	SPS FLANGE TEMP HI C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0127X	PITCH GMBL 1 C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0127X	PITCH GMBL 1 C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0128X	YAW GMBL 1 C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0128X	YAW GMBL 1 C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0129X	PITCH GMBL 2 C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0129X	PITCH GMBL 2 C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0130X	YAW GMBL 2 C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0130X	YAW GMBL 2 C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0131X	SPS ROUGH ECO C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0131X	SPS ROUGH ECO C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0132X	SPS PU SNSR C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0132X	SPS PU SNSR C/W GSE MON		DET	EV	1	---X-X-	SC107 + SUBS
SP0133X	SPS PRESS C/W GSE MON		DET	EV	1	-X-----	SC103 + SUBS
SP0133X	SPS PRESS C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
SP0167V	SPS LINE HEATER POWER A	0 +	32	VDC	1	---X---	SC103 + SUBS
SP0168V	SPS LINE HEATER POWER B	0 +	32	VDC	1	---X---	
SP0666X	SERVICE ENG SOL VLV 5 SIG MON	CLOSE	OPEN	EV	1	XXXX-X-	
SP0667X	SERVICE ENG SOL VLV 6 SIG MON	CLOSE	OPEN	EV	1	XXXX-X-	
SP1002X	SPS PU SENSOR FAIL		FAIL	EV	1	-X-X-X-	
SP1006X	PRIMARY PITCH GIMBAL MOTOR ON	OFF	ON	EV	1	XXXX-X-	
SP1007X	SECONDARY PITCH GIMBAL MOTOR ON	OFF	ON	EV	1	XXXX-X-	
SP1008X	PRIMARY YAW GIMBAL MOTOR ON	OFF	ON	EV	1	XXXX-X-	
SP1009X	SECONDARY YAW GIMBAL MOTOR ON	OFF	ON	EV	1	XXXX-X-	
SP2016T	TEMP 36 IN UPSTREAM OF OX VALVE	- 50	+ 150	DEGF	1	X------	
SP2017T	TEMP FUEL ENG LINE AT INTERFACE	- 50	+ 150	DEGF	1	X------	
SP2018T	TEMP 36IN UPSTREAM OF FUEL VALVE	- 50	+ 150	DEGF	1	X------	
SP2054T	TEMP GIMBAL ACTR CASE (YAW)	0	+ 200	DEGF	1	X------	
SP2055T	TEMP GIMBAL ACTR CASE (PITCH)	0	+ 200	DEGF	1	X------	
SP2074T	TEMP PUGS CONTROL BOX BASE	- 100	+ 200	DEGF	1	X------	
SP2083T	TEMP LINE OUT OF FUEL STOP TANK	- 50	+ 150	DEGF	1	X------	
SP2085T	TEMP FUEL TRANSFER LINE	- 50	+ 150	DEGF	1	X------	
SP2086T	TEMP FUEL LINE INTO ENG	- 50	+ 150	DEGF	1	X------	
SP2088T	TEMP LINE OUT OF OX STORAGE TANK	- 50	+ 150	DEGF	1	X------	
SP2090T	TEMP OX TRANSFER LINE	- 50	+ 150	DEGF	1	X------	
SP2501T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMNC SN3LSSO CY4 SO
SP2502T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------
SP2503T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------
SP2504T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------
SP2505T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------
SP2506T	TEMP NOZZLE EXTENSION	- 250	+ 250	DEGF	1	X------
SP2525T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2526T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2527T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2528T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2529T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2530T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2531T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2532T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2533T	TEMP SPS ABLATIVE CHAMBER WALL	- 100	+ 200	DEGF	1	X------
SP2540T	TEMP INJECTOR BAFFLE	- 150	+ 150	DEGF	1	X------
SP2541T	TEMP INJECTOR BAFFLE	- 150	+ 150	DEGF	1	X------
SP2580T	TEMP OXID MANIFOLD	- 50	+ 200	DEGF	1	X------
SP2581T	TEMP OXID INTO ENG	- 50	+ 150	DEGF	1	X------
SP2590T	TEMP AFT CLOSEOUT INNER SURF	- 200	+ 200	DEGF	1	X------
SP2591T	TEMP AFT CLOSEOUT INNER SURF	- 200	+ 200	DEGF	1	X------
SP2592T	TEMP AFT CLOSEOUT INNER SURF	- 200	+ 200	DEGF	1	X------
SP2625T	TEMP SPS N2 TANK	- 100	+ 150	DEGF	1	X------
SP3100X	FUEL TANK 1 PT SENSOR 1 (TOP)	WET	DRY	EV	1	-XXX-X-
SP3101X	FUEL TANK 1 PT SENSOR 2	WET	DRY	EV	1	-XXX-X-
SP3102X	FUEL TANK 1 PT SENSOR 3	WET	DRY	EV	1	-XXX-X-
SP3103X	FUEL TANK 1 PT SENSOR 4	WET	DRY	EV	1	-XXX-X-
SP3104X	FUEL TANK 1 PT SENSOR 5	WET	DRY	EV	1	-XXX-X-
SP3105X	FUEL TANK 1 PT SENSOR 6	WET	DRY	EV	1	-XXX-X-
SP3106X	FUEL TANK 1 PT SENSOR 7 (BOTTOM)	WET	DRY	EV	1	-XXX-X-
SP3107X	FUEL TANK 2 PT SENSOR 1 (TOP)	WET	DRY	EV	1	-XXX-X-
SP3108X	FUEL TANK 2 PT SENSOR 2	WET	DRY	EV	1	-XXX-X-
SP3109X	FUEL TANK 2 PT SENSOR 3	WET	DRY	EV	1	-XXX-X-
SP3110X	FUEL TANK 2 PT SENSOR 4	WET	DRY	EV	1	-XXX-X-
SP3111X	FUEL TANK 2 PT SENSOR 5	WET	DRY	EV	1	-XXX-X-
SP3112X	FUEL TANK 2 PT SENSOR 6	WET	DRY	EV	1	-XXX-X-
SP3113X	FUEL TANK 2 PT SENSOR 7	WET	DRY	EV	1	-XXX-X-
SP3114X	FUEL TANK 2 PT SENSOR 8 (BOTTOM)	WET	DRY	EV	1	-XXX-X-
SP3115X	OX TANK 1 PT SENSOR 1 (TOP)	WET	DRY	EV	1	-XXX-X-
SP3116X	OX TANK 1 PT SENSOR 2	WET	DRY	EV	1	-XXX-X-
SP3117X	OX TANK 1 PT SENSOR 3	WET	DRY	EV	1	-XXX-X-
SP3118X	OX TANK 1 PT SENSOR 4	WET	DRY	EV	1	-XXX-X-
SP3119X	OX TANK 1 PT SENSOR 5	WET	DRY	EV	1	-XXX-X-
SP3120X	OX TANK 1 PT SENSOR 6	WET	DRY	EV	1	-XXX-X-
SP3121X	OX TANK 1 PT SENSOR 7 (BOTTOM)	WET	DRY	EV	1	-XXX-X-
SP3122X	OX TANK 2 PT SENSOR 1 (TOP)	WET	DRY	EV	1	-XXX-X-
SP3123X	OX TANK 2 PT SENSOR 2	WET	DRY	EV	1	-XXX-X-
SP3124X	OX TANK 2 PT SENSOR 3	WET	DRY	EV	1	-XXX-X-

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
SP3125X	OX TANK 2 PT SENSOR 4	WET	DRY	EV	1	-XXX-X-
SP3126X	OX TANK 2 PT SENSOR 5	WET	DRY	EV	1	-XXX-X-
SP3127X	OX TANK 2 PT SENSOR 6	WET	DRY	EV	1	-XXX-X-
SP3128X	OX TANK 2 PT SENSOR 7	WET	DRY	EV	1	-XXX-X-
SP3129X	OX TANK 2 PT SENSOR 8 (BOTTOM)	WET	DRY	EV	1	-XXX-X-
SP3152V	PRI VALVE SERVO OUTPUT	0 +	26	VRMS	10	-X-X-X-
SP3152V	PRI VALVE SERVO OUTPUT	0 +	26	VRMS	1	-XX--X-
SP3153V	SEC VALVE SERVO OUTPUT	0 +	26	VRMS	10	-X-X-X-
SP3153V	SEC VALVE SERVO OUTPUT	0 +	26	VRMS	1	-XX--X-
FP5010X	LOW PURGE PRESSURE		LOW	EV	1	--X-X--
FP5011X	LOCAL CONTROL		LOCAL	EV	1	--X-X--
FP5012X	FAN NO. 1 ON		ON	EV	1	--X-X--
FP5013X	FAN NO. 2 ON		ON	EV	1	--X-X--
FP5014X	FAN NO. 3 ON		ON	EV	1	--X-X--
FP5015X	REMOTE CONTROL		REMOTE	EV	1	--X-X--
FP5016X	UNIT READY		READY	EV	1	--X-X--
FP5017P	CABINET PRESSURE	0	8	IH2O	1	--X-X--
FP5018X	LOW PURGE PRESSURE		LOW	EV	1	--X-X--
FP5019X	LOCAL CONTROL		LOCAL	EV	1	--X-X--
FP5020X	FAN NO. 1 ON		ON	EV	1	--X-X--
FP5021X	FAN NO. 2 ON		ON	EV	1	--X-X--
FP5022X	FAN NO. 3 ON		ON	EV	1	--X-X--
FP5023X	REMOTE CONTROL		REMOTE	EV	1	--X-X--
FP5024X	UNIT READY		READY	EV	1	--X-X--
FP5025P	CABINET PRESSURE	0	8	IH2O	1	--X-X--
FP5040X	GN2 BLANKET PRESSURE LOW		LOW	EV	1	--X-X--
FP5041X	GN2 BLANKET PRESSURE LOW		LOW	EV	1	--X-X--
FP5042X	GN2 BLANKET PRESSURE MEDIUM		MEDIUM	EV	1	--X-X--
FP5043X	GN2 BLANKET PRESSURE MEDIUM		MEDIUM	EV	1	--X-X--
FP5044X	GN2 BLANKET PRESSURE HIGH		HIGH	EV	1	--X-X--
FP5045X	GN2 BLANKET PRESSURE HIGH		HIGH	EV	1	--X-X--
FP5046X	GN2 BLANKET LOW PRESS IN PROG		ON	EV	1	--X-X--
FP5047X	GN2 BLANKET LOW PRESS IN PROG		ON	EV	1	--X-X--
FP5048X	GN2 BLANKET HIGH PRESS IN PROG		ON	EV	1	--X-X--
FP5049X	GN2 BLANKET HIGH PRESS IN PROG		ON	EV	1	--X-X--
FP5086X	TANK STATUS 5 PERCENT FULL		5PCT	EV	1	--X-X--
FP5087X	TANK STATUS 5 PERCENT FULL		5PCT	EV	1	--X-X--
FP5088P	TRANSFER PRESSURE	0	150	PSIG	1	--X-X--
FP5089P	CABINET PRESSURE	0	5	IH2O	1	--X-X--
FP5090Q	CIRCULATE AND TRANSFER FLOW RATE	0	100	GPM	1	--X-X--
FP5091X	CONTROL LOCATION REMOTE		REMOTE	EV	1	--X-X--
FP5092X	CIRCULATE AND TRANSFER IN PROG		ON	EV	1	--X-X--
FP5093X	CABINET PURGE LOW PRESSURE		LOW	EV	1	--X-X--
FP5094P	TRANSFER PRESSURE	0	150	PSIG	1	--X-X--
FP5095P	CABINET PRESSURE	0	5	IH2O	1	--X-X--
FP5096X	CONTROL LOCATION REMOTE		REMOTE	EV	1	--X-X--
FP5097X	CIRCULATE AND TRANSFER IN PROG		ON	EV	1	--X-X--

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MOPMMMC SN3LSSO CY4 SO
FP5098X	CABINET PURGE LOW PRESSURE		LOW	EV	1	--X-X--
FP5099Q	CIRCULATE AND TRANSFER FLOW RATE	0	100	GPM	1	--X-X--
FP5191X	SPS READY		READY	EV	1	--X-X--
FP5192X	SPS TRANSFER COMPLETE		COMP	EV	1	--X-X--
FP5193X	SELECT SPS SYSTEM		SELECT	EV	1	--X-X--
FP5194X	SPS TOP-OFF		TOPOFF	EV	1	--X-X--
FP5195X	SPS TRANSFER IN PROGRESS		TRANSF	EV	1	--X-X--
FP5196P	OUTLET HELIUM PRESS PT-3(SPS)	0	+5000	PSIG	1	--X-X--
FP5199X	LV108 OPEN OXIDIZER VENT		OPEN	EV	1	--X-X--
FP5200X	LV108 OPEN FUEL VENT		OPEN	EV	1	--X-X--
FP5201X	CABINET GN2 PURGE PURGED		PURGED	EV	1	--X-X--
FP5202X	UNIT POWER ON		ON	EV	1	--X-X--
FP5203X	CONTROL LOCATION LOCAL		LOCAL	EV	1	--X-X--
FP5204X	CONTROL LOCATION REMOTE		REMOTE	EV	1	--X-X--
FP5205X	PROPELLANT CONDITIONING ON		ON	EV	1	--X-X--
FP5206X	FDS CONDITIONING ON		ON	EV	1	--X-X--
FP5207X	SPACECRAFT LOADING ON		ON	EV	1	--X-X--
FP5208X	SPACECRAFT LOADING HOLD ON		ON	EV	1	--X-X--
FP5209X	SPACECRAFT UNLOAD ON		ON	EV	1	--X-X--
FP5210X	EXTERNAL SYSTEM PURGE ON		ON	EV	1	--X-X--
FP5233X	FULL SPACECRAFT LOAD		FULL	EV	1	--X-X--
FP5238X	PROPELLANT INLET DRY		DRY	EV	1	--X-X--
FP5239X	PROPELLANT INLET WET		WET	EV	1	--X-X--
FP5240X	PROPELLANT OUTLET DRY		DRY	EV	1	--X-X--
FP5241X	PROPELLANT OUTLET WET		WET	EV	1	--X-X--
FP5251X	CABINET GN2 PURGE PURGED		PURGED	EV	1	--X-X--
FP5252X	UNIT POWER ON		ON	EV	1	--X-X--
FP5253X	CONTROL LOCATION LOCAL		LOCAL	EV	1	--X-X--
FP5254X	CONTROL LOCATION REMOTE		REMOTE	EV	1	--X-X--
FP5255X	PROPELLANT CONDITIONING ON		ON	EV	1	--X-X--
FP5256X	FDS CONDITIONING ON		ON	EV	1	--X-X--
FP5257X	SPACECRAFT LOADING ON		ON	EV	1	--X-X--
FP5258X	SPACECRAFT LOADING HOLD ON		ON	EV	1	--X-X--
FP5259X	SPACECRAFT UNLOAD ON		ON	EV	1	--X-X--
FP5260X	EXTERNAL SYSTEM PURGE ON		ON	EV	1	--X-X--
FP5283X	FULL SPACECRAFT LOAD		FULL	EV	1	--X-X--
FP5288X	PROPELLANT INLET DRY		DRY	EV	1	--X-X--
FP5289X	PROPELLANT INLET WET		WET	EV	1	--X-X--
FP5290X	PROPELLANT OUTLET DRY		DRY	EV	1	--X-X--
FP5291X	PROPELLANT OUTLET WET		WET	EV	1	--X-X--
FP5301X	STANDBY AFTER TRANSFER ON		ON	EV	1	--X-X--
FP5302X	LOW CABINET GN2 PRESSURE		LOW	EV	1	--X-X--
FP5303X	TRIPPED BREAKER		TRIP	EV	1	--X-X--
FP5304X	TRIPPED OVERLOAD		TRIP	EV	1	--X-X--
FP5305P	GN2 PURGE PRESS ELECT CABINET	0	+ 5	IH2O	1	--X-X--
FP5306P	PROPELLANT INLET PRESSURE	0	+ 150	PSIA	1	--X-X--
FP5307P	PROPELLANT OUTLET PRESSURE	0	+ 600	PSIA	1	--X-X--
FP5308P	GN2 PURGE PRESS THERMAL COND CAB	0	+ 5	IH2O	1	--X-X--
FP5309T	PROPELLANT INLET TEMPERATURE	0	+ 150	DEGF	1	--X-X--
FP5310T	PROPELLANT OUTLET TEMPERATURE	0	+ 150	DEGF	1	--X-X--

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION		DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FP5311X	STANDBY AFTER TRANSFER ON			ON	EV	1	--X-X--
FP5312X	LOW CABINET GN2 PRESSURE			LOW	EV	1	--X-X--
FP5313X	TRIPPED BREAKER			TRIP	EV	1	--X-X--
FP5314X	TRIPPED OVERLOAD			TRIP	EV	1	--X-X--
FP5315P	GN2 PURGE PRESS ELECT CABINET		0 +	5	IH2O	1	--X-X--
FP5316P	PROPELLANT INLET PRESSURE		0 +	150	PSIA	1	--X-X--
FP5317P	PROPELLANT OUTLET PRESSURE		0 +	600	PSIA	1	--X-X--
FP5318P	FN2 PURGE PRESS THERMAL COND CAB		0 +	5	IH2O	1	--X-X--
FP5319T	PROPELLANT INLET TEMPERATURE		0 +	100	DEGF	1	--X-X--
FP5320T	PROPELLANT OUTLET TEMPERATURE		0 +	150	DEGF	1	--X-X--
FP5351T	TEMP SM SPS HE	S14-009	- 250 +	50	DEGF	1	--X-X--
FP5352P	PRESS SM SPS HE	S14-009	0 +	6000	PSIG	1	--X-X--
FP5353X	LV9 OPEN SM SPS HE LOAD	S14-009		OPEN	EV	1	--X-X--
FP5354X	LV9 CLOSE SM SPS HE LOAD	S14-009		CLOSE	EV	1	--X-X--
FP5355X	LV8 OPEN SPS HE VENT	S14-009		OPEN	EV	1	--X-X--
FP5356X	LV8 CLOSE SPS HE VENT	S14-009		CLOSE	EV	1	--X-X--
FP5357T	TT101 SM SPS FUEL TEMP	S14-008	0 +	200	DEGF	1	--X-X--
FP5358P	PT101 SM SPS FUEL PRESS	S14-008	0 +	500	PSIG	1	--X-X--
FP5359X	PV101 LOAD SM SPS FUEL	S14-008		LOAD	EV	1	--X-X--
FP5360X	PV101 CIRCL SM SPS FUEL	S14-008		CLOSE	EV	1	--X----
FP5360X	PV101 CIRCL SM SPS FUEL	S14-008		CIRC	EV	1	----X--
FP5361X	PV102 OPEN SM SPS FUEL	S14-008		OPEN	EV	1	--X-X--
FP5362X	PV102 CLOSE SM SPS FUEL	S14-008		CLOSE	EV	1	--X-X--
FP5363X	PV101 LOAD SM SPS OXID	S14-002		LOAD	EV	1	--X-X--
FP5364X	PV101 CIRCL SM SPS OXID	S14-002		CLOSE	EV	1	--X----
FP5364X	PV101 CIRCL SM SPS OXID	S14-002		CIRC	EV	1	----X--
FP5365X	PV102 OPEN SM SPS OXID	S14-002		OPEN	EV	1	--X-X--
FP5366X	PV102 CLOSE SM SPS OXID	S14-002		CLOSE	EV	1	--X-X--
FP5367T	TT101 TEMP SM SPS OXID	S14-002	0 +	200	DEGF	1	--X-X--
FP5368P	PT101 PRESS SM SPS OXID	S14-002	0 +	500	PSIG	1	--X-X--
FP5416P	PT5 GN2 PRESS	S14-009	0 +	5000	PSIG	1	--X-X--
FP5417T	TT5 GN2 TEMP	S14-009	0 +	200	DEGF	1	--X-X--
FP5420X	LV22 OP GN2 PRESS TK BLD	S14-009		OPEN	EV	1	--X-X--
FP5421X	LV22 CL GN2 PRESS TK BLD	S14-009		CLOSE	EV	1	--X-X--
FP5422X	LV23 OP GN2 PRESS TK FILL	S14-009		OPEN	EV	1	--X-X--
FP5475P	SM TANK PRESSURE OXIDIZER		0 +	500	PSIG	1	--X-X--
FP5476P	SM TANK PRESSURE FUEL		0 +	500	PSIG	1	--X-X--
FP5522X	PV301 OPEN SM SPS OXID SUPPLY			OPEN	EV	1	----X--
FP5523X	PV302 CLOSED LM SPS OXID SUPPLY			CLOSE	EV	1	----X--
FP5524X	PV303 OPEN SM SPS OXID RETURN			OPEN	EV	1	----X--
FP5525X	PV301 OPEN SM SPS FUEL SUPPLY			OPEN	EV	1	----X--
FP5526X	PV302 CLOSED LM SPS FUEL SUPPLY			CLOSE	EV	1	----X--
FP5527X	PV303 OPEN SM SPS FUEL RETURN			OPEN	EV	1	----X--
FP5528X	CSM CONTROLLING SM HELIUM			ON	EV	1	----X--
FP5529X	CSM CONTROLLING SM SPS FUEL			ON	EV	1	----X--
FP5530X	CSM CONTROLLING SM SPS OXID			ON	EV	1	----X--
FP5900Q	PROPELLANT FLOW RATE		0 +	100	GPM	1	--X-X--
FP5901X	FLOW TOTAL 2-00 BIT		NA	NA	EV	1	--X-X--
FP5902X	FLOW TOTAL 2-01 BIT		NA	NA	EV	1	--X-X--
FP5903X	FLOW TOTAL 2-03 BIT		NA	NA	EV	1	--X-X--

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - SERVICE PROPULSION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FP5904X	FLOW TOTAL 2-04 BIT	NA	NA	EV	1	--X-X--
FP5905X	FLOW TOTAL 2-05 BIT	NA	NA	EV	1	--X-X--
FP5906X	FLOW TOTAL 2-06 BIT	NA	NA	EV	1	--X-X--
FP5907X	FLOW TOTAL 2-07 BIT	NA	NA	EV	1	--X-X--
FP5908X	FLOW TOTAL 2-08 BIT	NA	NA	EV	1	--X-X--
FP5909X	FLOW TOTAL 2-09 BIT	NA	NA	EV	1	--X-X--
FP5910X	FLOW TOTAL 2-10 BIT	NA	NA	EV	1	--X-X--
FP5911X	FLOW TOTAL 2-11 BIT	NA	NA	EV	1	--X-X--
FP5912X	FLOW TOTAL 2-12 BIT	NA	NA	EV	1	--X-X--
FP5913X	FLOW TOTAL 2-13 BIT	NA	NA	EV	1	--X-X--
FP5914X	FLOW TOTAL 2-14 BIT	NA	NA	EV	1	--X-X--
FP5919X	FLOW TOTAL 2-02 BIT	NA	NA	EV	1	--X-X--
FP5940X	CONTROL LOCATION LOCAL		LOCAL	EV	1	--X-X--
FP5950Q	PROPELLANT FLOW RATE	0	+ 100	GPM	1	--X-X--
FP5951X	FLOW TOTAL 2-00 BIT	NA	NA	EV	1	--X-X--
FP5952X	FLOW TOTAL 2-01 BIT	NA	NA	EV	1	--X-X--
FP5953X	FLOW TOTAL 2-03 BIT	NA	NA	EV	1	--X-X--
FP5954X	FLOW TOTAL 2-04 BIT	NA	NA	EV	1	--X-X--
FP5955X	FLOW TOTAL 2-05 BIT	NA	NA	EV	1	--X-X--
FP5956X	FLOW TOTAL 2-06 BIT	NA	NA	EV	1	--X-X--
FP5957X	FLOW TOTAL 2-07 BIT	NA	NA	EV	1	--X-X--
FP5958X	FLOW TOTAL 2-08 BIT	NA	NA	EV	1	--X-X--
FP5959X	FLOW TOTAL 2-09 BIT	NA	NA	EV	1	--X-X--
FP5960X	FLOW TOTAL 2-10 BIT	NA	NA	EV	1	--X-X--
FP5961X	FLOW TOTAL 2-11 BIT	NA	NA	EV	1	--X-X--
FP5962X	FLOW TOTAL 2-12 BIT	NA	NA	EV	1	--X-X--
FP5963X	FLOW TOTAL 2-13 BIT	NA	NA	EV	1	--X-X--
FP5964X	FLOW TOTAL 2-14 BIT	NA	NA	EV	1	--X-X--
FP5965X	FLOW TOTAL 2-02 BIT	NA	NA	EV	1	--X-X--
FP5990X	CONTROL LOCATION LOCAL		LOCAL	EV	1	--X-X--

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
CR0023X	CM RCS 1 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CR0023X	CM RCS 1 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CR0024X	CM RCS 2 C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CR0024X	CM RCS 2 C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CR0248X	RCS TRANSFER SW A, SM	SM	CM	EV	1	------X	
CR0249X	RCS TRANSFER SW B, SM	SM	CM	EV	1	------X	
CR0250X	42 SEC TD RELAY C19A1TD1 SYS A		END	EV	1	------X	
CR0250X	42 SEC TD RELAY C19A1TD1 SYS A		END	EV	10	------X	
CR0251X	42 SEC TD RELAY C19A1TD8 SYS B		END	EV	1	------X	
CR0251X	42 SEC TD RELAY C19A1TD8 SYS B		END	EV	10	------X	
CR0270X	61 SEC TD RELAY SYS A FUEL DUMP		END	EV	10	------X	
CR0271X	61 SEC TD RELAY SYS B FUEL DUMP		END	EV	10	------X	
CR0272X	5 SEC FUEL DUMP TD C19A1TD9		END	EV	10	------X	
CR0273X	5 SEC FUEL DUMP TD C19A1TD2		END	EV	10	------X	
CR0274X	5 SEC FUEL DUMP TD C19A1TD3		END	EV	10	------X	
CR0275X	5 SEC FUEL DUMP TD C19A1TD10		END	EV	10	------X	
CR0276X	13 SEC FUEL DUMP TD C19A1TD11/K5		END	EV	10	------X	
CR0277X	13 SEC FUEL DUMP TD C19A1TD4/K6		END	EV	10	------X	
CR0278X	13 SEC FUEL DUMP TD C19A1TD5/K11		END	EV	10	------X	
CR0279X	13 SEC FUEL DUMP TD C19A1TD12/K12		END	EV	10	------X	
CR0280X	13 SEC DEADFACE TD C19A1TD13		END	EV	1	------X	
CR0280X	BAT MAIN BUS TIE DISABLE A TD13		DISABLE	EV	10	------X	
CR0281X	13 SEC DEADFACE TD C19A1TD7		END	EV	1	------X	
CR0281X	BAT MAIN BUS TIE DISABLE A TD7		DISABLE	EV	10	------X	
CR0282X	13 SEC DEADFACE TD C19A1TD6		END	EV	1	------X	
CR0282X	BAT MAIN BUS TIE DISABLE B TD6		DISABLE	EV	10	------X	
CR0283X	13 SEC DEADFACE TD C19A1TD4		END	EV	1	------X	
CR0283X	BAT MAIN BUS TIE DISABLE B TD14		DISABLE	EV	10	------X	
CR1020X	COMBINED PROP ISO VLV MON SYS 1	OPEN	CLOSE	EV	1	------X	
CR1020X	COMBINED PROP ISO VLV MON SYS A	OPEN	CLOSE	EV	1	------X	
CR1021X	COMBINED PROP ISO VLV MON SYS 2	OPEN	CLOSE	EV	1	------X	
CR1021X	COMBINED PROP ISO VLV MON SYS B	OPEN	CLOSE	EV	1	------X	
CR2110T	TEMP -P ENG INJECTOR HEAD SYS B	- 150	+ 200	DEGF	1	X------	
CR2115T	TEMP CCW ENG INJECTOR SYS B	- 150	+ 200	DEGF	1	X------	
CR2118T	TEMP -Y ENG INJECTOR HEAD SYS B	- 150	+ 200	DEGF	1	X------	
CR2170T	TEMP FUEL VALVE -Y ENG SYS A	- 150	+ 200	DEGF	1	X------	
CR2172T	TEMP FUEL VALVE -P ENG SYS B	- 150	+ 200	DEGF	1	X------	
CR2190T	TEMP OX VALVE -Y ENG SYS A	- 150	+ 200	DEGF	1	X------	
CR2191T	TEMP OX VALVE CCW ENG SYS B	- 150	+ 200	DEGF	1	X------	
CR2192T	TEMP OX VALVE -P ENG SYS B	- 150	+ 200	DEGF	1	X------	
CR4525T	TEMP -Y ENG OUT SPACE WALL SYS B	- 200	+ 200	DEGF	1	X------	
CR4526T	TEMP -Y ENG OUT SPACE WALL SYS B	- 200	+ 200	DEGF	1	X------	
CR4528T	TEMP -P ENG OUT SPACE WALL SYS B	- 200	+ 200	DEGF	1	X------	
CR4529T	TEMP -P ENG OUT SPACE WALL SYS B	- 200	+ 200	DEGF	1	X------	
CR4544T	TEMP CM RCS OX TK A OUTBD SIDE	0	+ 250	DEGF	1	X------	
CR4545T	TEMP CM RCS FUEL TK A OUTBD SIDE	0	+ 250	DEGF	1	X------	
CR4546T	TEMP CM RCS FUEL TK A MTG BRKT	0	+ 250	DEGF	1	X------	
CR4547T	TEMP CM RCS OX TK A MTG BRKT	0	+ 250	DEGF	1	X------	
CR4548T	TEMP CREW COMPT OUTER SKIN	0	+ 250	DEGF	1	X------	
CR4549T	TEMP CREW COMPT OUTER SKIN	0	+ 250	DEGF	1	X------	

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SU	
SR5005T	HE TEMP TANK A	- 100	+ 200	DEGF	1	XXXX-X-	
SR5006T	HE TEMP TANK B	- 100	+ 200	DEGF	1	XXXX-X-	
SR5007T	HE TEMP TANK C	- 100	+ 200	DEGF	1	XXXX-X-	
SR5008T	HE TEMP TANK D	- 100	+ 200	DEGF	1	XXXX-X-	
SR5041X	SM RCS A C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
SR5041X	SM RCS A C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
SR5042X	SM RCS B C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
SR5042X	SM RCS B C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
SR5043X	SM RCS C C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
SR5043X	SM RCS C C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
SR5044X	SM RCS D C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
SR5044X	SM RCS D C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
SR5046X	COMB PROP ISO VLV MON SEC SYS A	CLOSE	OPEN	EV	1	-XXX-X-	
SR5047X	COMB PROP ISO VLV MON SEC SYS B	CLOSE	OPEN	EV	1	-XXX-X-	
SR5048X	COMB PROP ISO VLV MON SEC SYS C	CLOSE	OPEN	EV	1	-XXX-X-	
SR5049X	COMB PROP ISO VLV MON SEC SYS D	CLOSE	OPEN	EV	1	-XXX-X-	
SR5050X	COMBINED PROP ISO VLV MON SYS A	OPEN	CLOSE	EV	1	-XXX-X-	
SR5051X	COMBINED PROP ISO VLV MON SYS B	OPEN	CLOSE	EV	1	-XXX-X-	
SR5052X	COMBINED PROP ISO VLV MON SYS C	OPEN	CLOSE	EV	1	-XXX-X-	
SR5053X	COMBINED PROP ISO VLV MON SYS D	OPEN	CLOSE	EV	1	-XXX-X-	
SR5097X	HE ISO VALVE FUEL SEC POS SYS A	OPEN	CLOSE	EV	1	-X-X-X-	
SR5098X	HE ISO VALVE FUEL SEC POS SYS B	OPEN	CLOSE	EV	1	-X-X-X-	
SR5099X	HE ISO VALVE FUEL SEC POS SYS C	OPEN	CLOSE	EV	1	-X-X-X-	
SR5100X	HE ISO VALVE FUEL SEC POS SYS D	OPEN	CLOSE	EV	1	-X-X-X-	
SR5101X	HE ISOLATION VALVE A1 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5102X	HE ISOLATION VALVE B1 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5103X	HE ISOLATION VALVE C1 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5104X	HE ISOLATION VALVE D1 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5105X	HE ISOLATION VALVE A2 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5106X	HE ISOLATION VALVE B2 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5107X	HE ISOLATION VALVE C2 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5108X	HE ISOLATION VALVE D2 POSITION	OPEN	CLOSE	EV	1	-XXX-X-	
SR5113X	OX ISOLATION VALVE A2 POSITION	OPEN	CLOSE	EV	1	XX-----	
SR5114X	OX ISOLATION VALVE B2 POSITION	OPEN	CLOSE	EV	1	XX-----	
SR5115X	OX ISOLATION VALVE C2 POSITION	OPEN	CLOSE	EV	1	XX-----	
SR5116X	OX ISOLATION VALVE D2 POSITION	OPEN	CLOSE	EV	1	XX-----	
SR5117X	OX SEC ISO VLV A2 POSITION	CLOSE	OPEN	EV	1	-XXX-X-	
SR5118X	OX SEC ISO VLV B2 POSITION	CLOSE	OPEN	EV	1	-XXX-X-	
SR5119X	OX SEC ISO VLV C2 POSITION	CLOSE	OPEN	EV	1	-XXX-X-	
SR5120X	OX SEC ISO VLV D2 POSITION	CLOSE	OPEN	EV	1	-XXX-X-	
SR7127T	TEMP INJ HEAD -Y ENG SYS D	- 100	+ 200	DEGF	1	X------	
SR7128T	TEMP INJ HEAD +Y ENG SYS D	- 100	+ 200	DEGF	1	X------	
SR7135T	TEMP INJ HEAD CW ENG SYS D	- 100	+ 200	DEGF	1	X------	
SR7136T	TEMP INJ HEAD CCW ENG SYS D	- 100	+ 200	DEGF	1	X------	
SR7149T	TEMP +Y ENG FUEL VLV SYS D	0	+ 300	DEGF	1	X------	
SR7150T	TEMP -Y ENG FUEL VLV SYS D	0	+ 300	DEGF	1	X------	
SR7151T	TEMP CW ENG FUEL VLV SYS D	0	+ 300	DEGF	1	X------	
SR7152T	TEMP CCW ENG FUEL VLV SYS D	0	+ 300	DEGF	1	X------	
SR7192T	TEMP FUEL MANIFOLD SYS D	0	+ 150	DEGF	1	X------	
SR7193T	TEMP OX MANIFOLD SYS D	0	+ 150	DEGF	1	X------	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMNC SN3LSSO CY4 SO
SR7196T	TEMP SURF OX LINE -Y ENG SYS D	- 150	+ 150	DEGF	1	X------
SR7209T	TEMP +Y ENG OX VLV SYS D	0	+ 200	DEGF	1	X------
SR7210T	TEMP -Y ENG OX VLV SYS D	0	+ 200	DEGF	1	X------
SR7211T	TEMP CW ENG OX VLV SYS D	0	+ 200	DEGF	1	X------
SR7212T	TEMP CCW ENG OX VLV SYS D	0	+ 200	DEGF	1	X------
SR7273T	TEMP ENG PACKAGE INNER SURF QUAD D	0	+ 200	DEGF	1	X------
SR7274T	TEMP -Y ENG NOZZLE RETAINER NUT	- 200	+ 300	DEGF	1	X------
SR7275T	TEMP NOZZLE SURF -Y SYS D	- 200	+ 300	DEGF	1	X------
SR7276T	TEMP NOZZLE SURF -Y SYS D	- 200	+ 300	DEGF	1	X------
SR7345T	TEMP RCS PANEL OUTER SURF SYS D	- 200	+ 300	DEGF	1	X------
SR7350T	TEMP RCS HOUSING IN SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7351T	TEMP RCS PANEL INNER SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7352T	TEMP RCS HOUSING OUT SURF SYS D	- 200	+ 300	DEGF	1	X------
SR7353T	TEMP RCS HOUSING IN SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7354T	TEMP RCS HOUSING SYS D	- 150	+ 300	DEGF	1	X------
SR7355T	TEMP RCS -Y ENG INJ FACE SYS D	- 50	+ 250	DEGF	1	X------
SR7356T	TEMP RCS ENG IN SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7357T	TEMP RCS ENG HSG IN SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7375T	TEMP RCS ENG HSG IN SURF SYS D	- 150	+ 250	DEGF	1	X------
SR7376T	TEMP RCS ENG FLANGE -Y ENG SYS D	- 50	+ 250	DEGF	1	X------
GR8001X	OXIDIZER DUMP INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8002X	OXIDIZER DUMP INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8003X	OXIDIZER DUMP INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8004X	OXIDIZER DUMP INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8005X	OXIDIZER BY-PASS INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8006X	OXIDIZER BY-PASS INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8007X	OXIDIZER BY-PASS INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8008X	OXIDIZER BY-PASS INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8009X	HE INTERCONNECT(OXID)INIT A GO	NORM	GO	EV	1	-X-----
GR8010X	HE INTERCONNECT(OXID)INIT A TRAN	NORM	NO-GO	EV	1	-X-----
GR8011X	OXID INTERCONNECT INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8012X	OXID INTERCONNECT INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8013X	HE PRESS TANK 2 INIT B GO	NORM	GO	EV	1	-X-X-X-
GR8013X	HE PRESS TANK B INIT B GO	NORM	GO	EV	1	-XX--X-
GR8014X	HE PRESS TANK 2 INIT B TRANS	NORM	NO-GO	EV	1	-X-X-X-
GR8014X	HE PRESS TANK B INIT B TRANS	NORM	NO-GO	EV	1	-XX--X-
GR8015X	FUEL BY-PASS INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8016X	FUEL BY-PASS INIT A TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GR8017X	FUEL BY-PASS INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8018X	FUEL BY-PASS INIT B TRANSIENT	NORM	NO-GO	EV	1	-XXX-X-
GR8019X	HE INTERCONNECT(FUEL)INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8020X	HE INTERCONNECT(FUEL)INIT A TRAN	NORM	NO-GO	EV	1	-XXX-X-
GR8023X	HE PRESS TANK 1 INIT A GO	NORM	GO	EV	1	-X-X-X-
GR8023X	HE PRESS TANK A INIT A GO	NORM	GO	EV	1	-XX--X-
GR8024X	HE PRESS TANK 1 INIT A TRANS	NORM	NO-GO	EV	1	-X-X-X-
GR8024X	HE PRESS TANK A INIT A TRANS	NORM	NO-GO	EV	1	-XX--X-
FR8056X	SC TANK FULL		FULL	EV	1	--X----
FR8057X	SPACECRAFT TANKS LOADED 1		LOADED	EV	1	--X----
FR8058X	SPACECRAFT TANKS LOADED 2		LOADED	EV	1	--X----
FR8060P	ELECTRICAL CONSOLE PRESSURE	0	4	IH2O	1	--X-X--

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FR8203X	PS6 ULLAGE POT MAX VOL S14-057		MAX	EV	1	--X-X--
FR8204X	PS5 ULLAGE POT MIN VOL S14-057		MIN	EV	1	--X-X--
FR8225X	UNIT COND AND EVACUATE FDS READY		READY	EV	1	--X-X--
FR8226X	UNIT COND / EVACUATE FDS IN PROG		ON	EV	1	--X-X--
FR8227X	FDS COND AND EVACUATE SC READY		READY	EV	1	--X-X--
FR8228X	FDS COND AND EVACUATE SC IN PROG		ON	EV	1	--X-X--
FR8231X	UNLOAD SC READY		READY	EV	1	--X-X--
FR8232X	UNLOAD SC IN PROGRESS		ON	EV	1	--X-X--
FR8235X	DRAIN AND PURGE FDS READY		READY	EV	1	--X-X--
FR8236X	DRAIN AND PURGE FDS DRAIN		DRAIN	EV	1	--X-X--
FR8237X	DRAIN AND PURGE FDS PURGE		PURGE	EV	1	--X-X--
FR8275X	UNIT COND AND EVACUATE FDS READY		READY	EV	1	--X-X--
FR8276X	UNIT COND / EVACUATE FDS IN PROG		ON	EV	1	--X-X--
FR8277X	FDS COND AND EVACUATE SC READY		READY	EV	1	--X-X--
FR8278X	FDS COND AND EVACUATE SC IN PROG		ON	EV	1	--X-X--
FR8283X	UNLOAD SC READY		READY	EV	1	--X-X--
FR8284X	UNLOAD SC IN PROGRESS		ON	EV	1	--X-X--
FR8287X	DRAIN AND PURGE FDS READY		READY	EV	1	--X-X--
FR8288X	DRAIN AND PURGE FDS DRAIN		DRAIN	EV	1	--X-X--
FR8289X	DRAIN AND PURGE FDS PURGE		PURGE	EV	1	--X-X--
FR8291X	RCS TRANSFER COMPLETE		COMPT	EV	1	--X-X--
FR8292X	SELECT RCS SYSTEM		SELECT	EV	1	--X-X--
FR8293X	RCS READY		READY	EV	1	--X-X--
FR8294X	RCS TOP-OFF		TOPOFF	EV	1	--X-X--
FR8295X	RCS TRANSFER IN PROGRESS		TRANSF	EV	1	--X-X--
FR8296P	OUTLET HELIUM PRESS PT-2(RCS)	0	+5000	PSIG	1	--X-X--
FR8321X	SC TANK FULL		FULL	EV	1	--X----
FR8329P	ELECTRICAL CONSOLE PRESS	0	+ 4	IH2O	1	--X-X--
FR8332P	HOLDING TANK PRESSURE	0	+ 500	PSIG	1	--X-X--
FR8333P	PROPELLANT TO SC PRESSURE	0	+ 500	PSIG	1	--X-X--
FR8334T	HOLDING TANK TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8335T	PROPELLANT TO SC TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8336T	GN2 TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8337P	VLV ACTUATING SYS PRESSURE	0	+ 200	PSIG	1	--X-X--
FR8338Q	PROPELLANT FLOW RATE	0	+ 5	GPM	1	--X-X--
FR8344T	HOLDING TANK TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8345T	PROPELLANT TO SC TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8346T	GN2 TEMPERATURE	0	+ 150	DEGF	1	----X--
FR8348Q	PROPELLANT FLOW RATE	0	5	GPM	1	----X--
FR8354X	LV7 OPEN RCS HE VENT		OPEN	EV	1	--X-X--
FR8355X	LV7 CLOSE RCS HE VENT		CLOSE	EV	1	--X-X--
FR8356X	LV1 OPEN SM RCS HELIUM TANK A		OPEN	EV	1	--X-X--
FR8357X	LV1 CLOSE SM RCS HELIUM TANK A		CLOSE	EV	1	--X-X--
FR8358X	LV2 OPEN SM RCS HELIUM TANK B		OPEN	EV	1	--X-X--
FR8359X	LV2 CLOSE SM RCS HELIUM TANK B		CLOSE	EV	1	--X-X--
FR8360T	TT1 TEMP RCS HELIUM	- 250	+ 50	DEGF	1	--X-X--
FR8361P	PT1 PRESSURE RCS HELIUM	0	+6000	PSIG	1	--X-X--
FR8412X	LV3 OPEN SM RCS HELIUM TANK C		OPEN	EV	1	--X-X--
FR8413X	LV3 CLOSE SM RCS HELIUM TANK C		CLOSE	EV	1	--X-X--
FR8414X	LV4 OPEN SM RCS HELIUM TANK D		OPEN	EV	1	--X-X--

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FR8415X	LV4 CLOSE SM RCS HELIUM TANK D		CLOSE	EV	1	--X-X--
FR8416X	LV5 OPEN CM RCS HELIUM TANK A		OPEN	EV	1	--X----
FR8416X	LV5 OPEN CM RCS HELIUM TANK 1		OPEN	EV	1	----X--
FR8417X	LV5 CLOSE CM RCS HELIUM TANK A		CLOSE	EV	1	--X----
FR8417X	LV5 CLOSE CM RCS HELIUM TANK 1		CLOSE	EV	1	----X--
FR8418X	LV6 OPEN CM RCS HELIUM TANK B		OPEN	EV	1	--X----
FR8418X	LV6 OPEN CM RCS HELIUM TANK 2		OPEN	EV	1	----X--
FR8419X	LV6 CLOSE CM RCS HELIUM TANK B		CLOSE	EV	1	--X----
FR8419X	LV6 CLOSE CM RCS HELIUM TANK 2		CLOSE	EV	1	----X--
GR8490X	FIRE IND ENG SM A3		FIRE	EV	1	-X-X-X-
GR8490X	FIRE IND ENG SM SYS A + PITCH		FIRE	EV	1	--X----
GR8491X	FIRE IND ENG SM A4		FIRE	EV	1	-X-X-X-
GR8491X	FIRE IND ENG SM SYS A - PITCH		FIRE	EV	1	--X----
FR8491X	PS6 ULLAGE POT MAX VOL S14-064		MAX	EV	1	--X-X--
GR8492X	FIRE IND ENG SM A1		FIRE	EV	1	-X-X-X-
GR8492X	FIRE IND ENG SM SYS A CW ROLL		FIRE	EV	1	--X----
FR8492X	PS5 ULLAGE POT MIN VOL S14-044		MIN	EV	1	--X-X--
GR8493X	FIRE IND ENG SM A2		FIRE	EV	1	-X-X-X-
GR8493X	FIRE IND ENG SM SYS A CCW ROLL		FIRE	EV	1	--X----
GR8494X	FIRE IND ENG SM B3		FIRE	EV	1	-X-X-X-
GR8494X	FIRE IND ENG SM SYS B + YAW		FIRE	EV	1	--X----
GR8495X	FIRE IND ENG SM B4		FIRE	EV	1	-X-X-X-
GR8495X	FIRE IND ENG SM SYS B - YAW		FIRE	EV	1	--X----
GR8496X	FIRE IND ENG SM B1		FIRE	EV	1	-X-X-X-
GR8496X	FIRE IND ENG SM SYS B CW ROLL		FIRE	EV	1	--X----
GR8497X	FIRE IND ENG SM B2		FIRE	EV	1	-X-X-X-
GR8497X	FIRE IND ENG SM SYS B CCW ROLL		FIRE	EV	1	--X----
GR8498X	FIRE IND ENG SM C3		FIRE	EV	1	-X-X-X-
GR8498X	FIRE IND ENG SM SYS C + PITCH		FIRE	EV	1	--X----
GR8499X	FIRE IND ENG SM C4		FIRE	EV	1	-X-X-X-
GR8499X	FIRE IND ENG SM SYS C - PITCH		FIRE	EV	1	--X----
GR8500X	FIRE IND ENG SM C1		FIRE	EV	1	-X-X-X-
GR8500X	FIRE IND ENG SM SYS C CW ROLL		FIRE	EV	1	--X----
GR8501X	FIRE IND ENG SM C2		FIRE	EV	1	-X-X-X-
GR8501X	FIRE IND ENG SM SYS C CCW ROLL		FIRE	EV	1	--X----
GR8502X	FIRE IND ENG SM D3		FIRE	EV	1	-X-X-X-
GR8502X	FIRE IND ENG SM SYS D + YAW		FIRE	EV	1	--X----
GR8503X	FIRE IND ENG SM D4		FIRE	EV	1	-X-X-X-
GR8503X	FIRE IND ENG SM SYS D - YAW		FIRE	EV	1	--X----
GR8504X	FIRE IND ENG SM D1		FIRE	EV	1	-X-X-X-
GR8504X	FIRE IND ENG SM SYS D CW ROLL		FIRE	EV	1	--X----
GR8505X	FIRE IND ENG SM D2		FIRE	EV	1	-X-X-X-
GR8505X	FIRE IND ENG SM SYS D CCW ROLL		FIRE	EV	1	--X----
GR8507X	FIRE IND ENG CM 12		FIRE	EV	1	-X-X-X-
GR8507X	FIRE IND ENG CM SYS A CCW ROLL		FIRE	EV	1	--X----
GR8508X	FIRE IND ENG CM 11		FIRE	EV	1	-X-X-X-
GR8508X	FIRE IND ENG CM SYS A CW ROLL		FIRE	EV	1	--X----

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR SA ST PE	MDPMMMC SN3LSSO CY4 SO
GR8509X	FIRE IND ENG CM 14		FIRE	EV	1	-X-X-X-
GR8509X	FIRE IND ENG CM SYS A - PITCH		FIRE	EV	1	--X----
GR8510X	FIRE IND ENG CM 13		FIRE	EV	1	-X-X-X-
GR8510X	FIRE IND ENG CM SYS A + PITCH		FIRE	EV	1	--X----
GR8511X	FIRE IND ENG CM 16		FIRE	EV	1	-X-X-X-
GR8511X	FIRE IND ENG CM SYS A - YAW		FIRE	EV	1	--X----
GR8512X	FIRE IND ENG CM 15		FIRE	EV	1	-X-X-X-
GR8512X	FIRE IND ENG CM SYS A + YAW		FIRE	EV	1	--X----
GR8513X	FIRE IND ENG CM 22		FIRE	EV	1	-X-X-X-
GR8513X	FIRE IND ENG CM SYS B CCW ROLL		FIRE	EV	1	--X----
GR8514X	FIRE IND ENG CM 21		FIRE	EV	1	-X-X-X-
GR8514X	FIRE IND ENG CM SYS B CW ROLL		FIRE	EV	1	--X----
GR8515X	FIRE IND ENG CM 24		FIRE	EV	1	-X-X-X-
GR8515X	FIRE IND ENG CM SYS B - PITCH		FIRE	EV	1	--X----
GR8516X	FIRE IND ENG CM 23		FIRE	EV	1	-X-X-X-
GR8516X	FIRE IND ENG CM SYS B + PITCH		FIRE	EV	1	--X----
GR8517X	FIRE IND ENG CM 26		FIRE	EV	1	-X-X-X-
GR8517X	FIRE IND ENG CM SYS B - YAW		FIRE	EV	1	--X----
GR8518X	FIRE IND ENG CM 25		FIRE	EV	1	-X-X-X-
GR8518X	FIRE IND ENG CM SYS B + YAW		FIRE	EV	1	--X----
FR8523P	HOLDING TANK PRESSURE	0	500	PSIG	1	--X-X--
FR8524P	PROPELLANT TO S/C PRESSURE	0	500	PSIG	1	--X-X--
FR8525T	HOLDING TANK TEMPERATURE	0 +	150	DEGF	1	----X--
FR8526T	PROPELLANT TO SC TEMPERATURE	0 +	150	DEGF	1	----X--
FR8527T	GN2 TEMPERATURE	0 +	150	DEGF	1	----X--
FR8528P	VLV ACTUATING SYSTEM PRESS	0	200	PSIG	1	--X-X--
FR8529Q	PROPELLANT FLOW RATE	0 +	5	GPM	1	--X-X--
FR8556X	OXIDIZER MASS HUNDREDS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8557X	OXIDIZER MASS HUNDREDS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8558X	OXIDIZER MASS HUNDREDS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8559X	OXIDIZER MASS HUNDREDS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8560X	OXIDIZER MASS TENS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8561X	OXIDIZER MASS TENS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8562X	OXIDIZER MASS TENS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8563X	OXIDIZER MASS TENS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8564X	OXIDIZER MASS UNITS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8565X	OXIDIZER MASS UNITS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8566X	OXIDIZER MASS UNITS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8567X	OXIDIZER MASS UNITS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8568X	OXIDIZER MASS TENTHS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8569X	OXIDIZER MASS TENTHS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8570X	OXIDIZER MASS TENTHS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8571X	OXIDIZER MASS TENTHS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8588X	CM FUEL MASS HUNDREDS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8589X	CM FUEL MASS HUNDREDS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8590X	CM FUEL MASS HUNDREDS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8591X	CM FUEL MASS HUNDREDS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8592X	CM FUEL MASS TENS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8593X	CM FUEL MASS TENS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8594X	CM FUEL MASS TENS 2-1 BIT	NA	NA	EV	1	--X-X--

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
FR8595X	CM FUEL MASS TENS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8596X	CM FUEL MASS UNITS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8597X	CM FUEL MASS UNITS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8598X	CM FUEL MASS UNITS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8599X	CM FUEL MASS UNITS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8600X	CM FUEL MASS TENTHS 2-3 BIT	NA	NA	EV	1	--X-X--
FR8601X	CM FUEL MASS TENTHS 2-2 BIT	NA	NA	EV	1	--X-X--
FR8602X	CM FUEL MASS TENTHS 2-1 BIT	NA	NA	EV	1	--X-X--
FR8603X	CM FUEL MASS TENTHS 2-0 BIT	NA	NA	EV	1	--X-X--
FR8608X	LV201 OPEN SM RCS OXID SUPPLY		OPEN	EV	1	----X--
FR8609X	LV202 CLOSED LM RCS OXID SUPPLY		CLOSE	EV	1	----X--
FR8610X	LV201 OPEN SM RCS FUEL SUPPLY		OPEN	EV	1	----X--
FR8611X	LV202 CLOSED LEM RCS FUEL SUPPLY		CLOSE	EV	1	----X--
FR8612X	CSM CONTROLLING SM RCS FUEL		ON	EV	1	----X--
FR8613X	CSM CONTROLLING SM RCS OXID		ON	EV	1	----X--
GR8618X	FUEL DUMP INIT A GO	NORM	GO	EV	1	-XXX-X-
GR8619X	FUEL DUMP INIT A TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8620X	FUEL DUMP INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8621X	FUEL DUMP INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
FR8634X	FUEL VACUUM PUMP ON		ON	EV	1	--X-X--
FR8635X	OXID VACUUM PUMP ON		ON	EV	1	--X-X--
GR8700X	HE INTERCONNECT(OXID)INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8701X	HE INTERCONNECT(OXID)INIT B TRAN	NORM	NO-GO	EV	1	-XXX-X-
GR8704X	HE INTERCONNECT(FUEL)INIT B GO	NORM	GO	EV	1	-X-----
GR8705X	HE INTERCONNECT(FUEL)INIT B TRAN	NORM	NO-GO	EV	1	-X-----
GR8706X	FUEL INTERCONNECT INIT B GO	NORM	GO	EV	1	-XXX-X-
GR8707X	FUEL INTERCONNECT INIT B TRANS	NORM	NO-GO	EV	1	-XXX-X-
GR8708X	HE PRESS TANK 2 A GO	NORM	GO	EV	1	-X-X-X-
GR8708X	HE PRESS TANK B INIT A GO	NORM	GO	EV	1	-XX--X-
GR8709X	HE PRESS TANK 2 A TRANS	NORM	NO-GO	EV	1	-X-X-X-
GR8709X	HE PRESS TANK B INIT A TRANS	NORM	NO-GO	EV	1	-XX--X-
GR8710X	HE PRESS TANK 1 B GO	NORM	GO	EV	1	-X-X-X-
GR8710X	HE PRESS TANK A INIT B GO	NORM	GO	EV	1	-XX--X-
GR8711X	HE PRESS TANK 1 B TRANS	NORM	NO-GO	EV	1	-X-X-X-
GR8711X	HE PRESS TANK A INIT B TRANS	NORM	NO-GO	EV	1	-XX--X-
FR8740X	LV1 OP FUEL PURGE/DRAIN SC/FDS		OPEN	EV	1	--X-X--
FR8741X	LV1 CL FUEL PURGE/DRAIN SC/FDS		CLOSE	EV	1	--X-X--
FR8742X	LV2 OP FUEL RETURN		OPEN	EV	1	--X-X--
FR8743X	LV2 CL FUEL RETURN		CLOSE	EV	1	--X-X--
FR8744X	LV3 OP FUEL FDS CIRCULATION		OPEN	EV	1	--X-X--
FR8745X	LV3 CL FUEL S/C CIRCULATION		CLOSE	EV	1	--X-X--
FR8746X	LV4 OP FUEL FILL/CIRCULATION		OPEN	EV	1	--X-X--
FR8747X	LV4 CL FUEL FILL/CIRCULATION		CLOSE	EV	1	--X-X--
FR8748X	LV5 OP HE PRESS		OPEN	EV	1	--X-X--
FR8749X	LV5 CL HE PRESS		CLOSE	EV	1	--X-X--
FR8750X	LV6 OP FUEL TANK BLADDER PRESS		OPEN	EV	1	--X-X--
FR8751X	LV6 CL FUEL TANK BLADDER PRESS		CLOSE	EV	1	--X-X--
FR8752X	LV7 OP FUEL BLADDER VENT		OPEN	EV	1	--X-X--
FR8753X	LV7 CL FUEL BLADDER VENT		CLOSE	EV	1	--X-X--
FR8754X	LV8 OP FUEL BACK PRESSURE		OPEN	EV	1	--X-X--
FR8755X	LV8 CL FUEL BACK PRESSURE		CLOSE	EV	1	--X-X--

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - REACTION CONTROL

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
FR8756X	LV9 OP VENT FUEL ULLAGE CYLINDER		OPEN	EV	1	--X----	
FR8756X	LV9 VENT FUEL ULLAGE CYL POS 1		OPEN	EV	1	----X--	SC103 + SUBS
FR8757X	LV9 CL PRESS FLEL ULLAGE CYLINDER		CLOSE	EV	1	--X----	
FR8757X	LV9 PRESS FUEL ULLAGE CYL POS 2		CLOSE	EV	1	----X--	SC103 + SUBS
FR8758X	LV10 OP FUEL S/C CIRCULATION		OPEN	EV	1	--X-X--	
FR8759X	LV10 CL FUEL FDS CIRCULATION		CLOSE	EV	1	--X-X--	
FR8760T	TT1 FUEL SUPPLY TEMPERATURE	0 +	200	DEGF	1	--X-X--	
FR8761P	VT1 FUEL S/C TANK VACUUM	0 +	15	PSIA	1	--X-X--	
FR8762P	PT1 FUEL SUPPLY PRESSURE	0 +	60	PSIG	1	--X-X--	
FR8763P	PT2 FUEL LIQUID SIDE VENT/PRESS	0 +	200	PSIG	1	--X-X--	
FR8764P	PT3 FUEL HE SUPPLY VENT/PRESS	0 +	200	PSIG	1	--X-X--	
FR8765X	LV1 OP OXID PURGE/DRAIN SC/FDS		OPEN	EV	1	--X-X--	
FR8766X	LV1 CL OXID PURGE/DRAIN SC/FDS		CLOSE	EV	1	--X-X--	
FR8767X	LV2 OP OXID RETURN		OPEN	EV	1	--X-X--	
FR8768X	LV2 CL OXID RETURN		CLOSE	EV	1	--X-X--	
FR8769X	LV3 OP OXID FDS CIRCULATION		OPEN	EV	1	--X-X--	
FR8770X	LV3 CL OXID S/C CIRCULATION		CLOSE	EV	1	--X-X--	
FR8771X	LV4 OP OXID FILL/CIRCULATION		OPEN	EV	1	--X-X--	
FR8772X	LV4 CL OXID FILL/CIRCULATION		CLOSE	EV	1	--X-X--	
FR8773X	LV5 OP HE PRESSURE		OPEN	EV	1	--X-X--	
FR8774X	LV5 CL HE PRESSURE		CLOSE	EV	1	--X-X--	
FR8775X	LV6 OP OXID TANK BLADDER PRESS		OPEN	EV	1	--X-X--	
FR8776X	LV6 CL OXID TANK BLADDER PRESS		CLOSE	EV	1	--X-X--	
FR8777X	LV7 OP OXID BLADDER VENT		OPEN	EV	1	--X-X--	
FR8778X	LV7 CL OXID BLADDER VENT		CLOSE	EV	1	--X-X--	
FR8779X	LV8 OP OXID BACK PRESSURE		OPEN	EV	1	--X-X--	
FR8780X	LV8 CL OXID BACK PRESSURE		CLOSE	EV	1	--X-X--	
FR8781X	LV9 OP PRESS OXID ULLAGE CYL		OPEN	EV	1	--X----	
FR8781X	LV9 VENT OXID ULLAGE CYL POS 1		OPEN	EV	1	----X--	SC103 + SUBS
FR8782X	LV9 CL VENT OXID ULLAGE CYLINDER		CLOSE	EV	1	--X----	
FR8782X	LV9 PRESS OXID ULLAGE CYL POS 2		CLOSE	EV	1	----X--	SC103 + SUBS
FR8783X	LV10 OP OXID S/C CIRCULATION		OPEN	EV	1	--X-X--	
FR8784X	LV10 CL OXID FDS CIRCULATION		CLOSE	EV	1	--X-X--	
FR8785T	TT1 OXID SUPPLY TEMPERATURE	0 +	200	DEGF	1	--X-X--	
FR8786P	VT1 OXIDIZER S/C TANK VACUUM	0 +	15	PSIA	1	--X-X--	
FR8787P	PT1 OXIDIZER SUPPLY PRESSURE	0 +	60	PSIG	1	--X-X--	
FR8788P	PT2 OXID LIQUID SIDE VENT PRESS	0 +	200	PSIG	1	--X-X--	
FR8789P	PT3 OXID HE SUPPLY VENT/PRESS	0 +	200	PSIG	1	--X-X--	
FR8790X	FUEL ULLAGE MAX LIQUID VOLUME		MAX	EV	1	--X-X--	
FR8791X	FUEL ULLAGE MIN LIQUID VOLUME		MIN	EV	1	--X-X--	
FR8792X	OXID ULLAGE MAX LIQUID VOLUME		MAX	EV	1	--X-X--	
FR8793X	OXID ULLAGE MIN LIQUID VOLUME		MIN	EV	1	--X-X--	
FR8794X	FUEL COUNTER ARMED		ARMED	EV	1	--X-X--	
FR8795X	OXID COUNTER ARMED		ARMED	EV	1	--X-X--	
FR8900X	GN2 SUPPLY LOW		LOW	EV	1	--X-X--	
FR8960X	GN2 SUPPLY LOW		LOW	EV	1	--X-X--	

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - LV EMERGENCY DETECTION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
CS0187X	SIVB IU UDL CMD INHIBIT SYS A	ACCEPT	BLOCK	EV	1	-X-X-X-
CS0188X	SIVB IU UDL CMD INHIBIT SYS B	ACCEPT	BLOCK	EV	1	-X-X-X-
CS0189X	2 ENG OUT AUTO-ABORT DEACT 1		DEACT	EV	1	-XXX-X-
CS0190X	2 ENG OUT AUTO-ABORT DEACT 2		DEACT	EV	1	-XXX-X-
CS0191X	2 ENG OUT AUTO-ABORT DEACT 3		DEACT	EV	1	-XXX-X-
CS0192X	LV RATE EXCES AUTO-ABORT DEACT 1		DEACT	EV	1	-XXX-X-
CS0193X	LV RATE EXCES AUTO-ABORT DEACT 2		DEACT	EV	1	-XXX-X-
CS0194X	LV RATE EXCES AUTO-ABORT DEACT 3		DEACT	EV	1	-XXX-X-
CS0195X	LV ENGINES CUTOFF NO. 1	COFF		EV	1	-XXX-X-
CS0196X	LV ENGINES CUTOFF NO. 2	COFF		EV	1	-XXX-X-
CS0197X	LV ENGINES CUTOFF NO. 3	COFF		EV	1	-XXX-X-
CS0198X	MAN INIT SII/SIVB SEP SEQ A		SEP	EV	1	-X-X-X- SC103 + SUBS
CS0199X	MAN INIT SII/SIVB SEP SEQ B		SEP	EV	1	-X-X-X- SC103 + SUBS

CSM MEASUREMENT EQUIPEMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - COMMUNICATION AND INSTRUMENTATION

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
ST0151X	HI GAIN ANT SCAN LIMIT C/W GSE		DET	EV	1	-X-----	SC107 + SUBS
ST0151X	HI GAIN ANT SCAN LIMIT C/W GSE		DET	EV	1	---X-X-	SC103 + SUBS
ST0165T	TEMP HI GAIN ANT BOOM INBOARD	- 250	+ 300	DEGF	1	X------	
ST0167T	TEMP HI GAIN ANT BOOM OUTBOARD	- 250	+ 300	DEGF	1	X------	
ST0168T	TEMP HI GAIN ANT MTG FLANGE	- 250	+ 300	DEGF	1	X------	
ST0169T	TEMP HI GAIN ANT ELECT PKG FLG	- 250	+ 300	DEGF	1	X------	
ST0170T	TEMP HI GAIN COAX LOC 1	- 250	+ 300	DEGF	1	X------	
ST0171T	TEMP HI GAIN COAX LOC 2	- 250	+ 300	DEGF	1	X------	
ST0172T	TEMP HI GAIN COAX LOC 3	- 250	+ 300	DEGF	1	X------	
ST0173T	TEMP HI GAIN COAX LOC 4	- 250	+ 300	DEGF	1	X------	
CT0276X	CREW ALERT C/W GSE MON		DET	EV	1	-X-----	SC107 + SUBS
CT0276X	CREW ALERT C/W GSE MON		DET	EV	1	---X-X-	SC103 + SUBS
CT0344X	PROGRAM COUNTER BLOCK STATUS	OFF	ON	EV	1	------X	
CT0345X	FRAME ID COUNTER BLOCK STATUS	OFF	ON	EV	1	------X	
CT0346X	CODER BLOCK STATUS	OFF	ON	EV	1	------X	
CT0347X	OUTPUT REGISTER BLOCK STATUS	OFF	ON	EV	1	------X	
CT0974V	DSE SCIENTIFIC OUTPUT 1	0	2.0	VRMS	10	------X	
CT0975V	DSE SCIENTIFIC OUTPUT 2	0	2.0	VRMS	10	------X	
CT0976V	DSE SCIENTIFIC OUTPUT 3	0	2.0	VRMS	10	------X	
GT5020X	FLITE QUAL HRDLN CHANNELS 1-8	OFF	ON	EV	1	--X----	
GT5021X	FLITE QUAL HRDLN CHANNELS 2-9	OFF	ON	EV	1	--X----	
GT5022X	FLITE QUAL HRDLN CHANNELS 3-10	OFF	ON	EV	1	--X----	
GT5023X	FLITE QUAL HRDLN CHANNELS 4-11	OFF	ON	EV	1	--X----	
GT5024X	FLITE QUAL HRDLN CHANNELS 5-12	OFF	ON	EV	1	--X----	
GT5025X	FLITE QUAL HRDLN CHANNELS 6-13	OFF	ON	EV	1	--X----	
GT5026X	FLITE QUAL HRDLN CHANNELS 7-14	OFF	ON	EV	1	--X----	
GT5027X	FLITE QUAL SCANNER REF POSITION	OFF	ON	EV	1	--X----	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - GROUND SUPPORT EQUIPMENT

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GV0001V	ANALOG VOLTAGE STND C14-212-1		1	VDC	10	------X
GV0002V	ANALOG VOLTAGE STND C14-212-2		2	VDC	10	------X
GV0003V	ANALOG VOLTAGE STND C14-213-1		3	VDC	10	------X
GV0004V	ANALOG VOLTAGE STND C14-213-2		4	VDC	1	------X
GV0014X	GO SUMMATION SIGNAL		GO	EV	1	--X-X--
GV0015X	NO GO SUMMATION SIGNAL		NO-GO	EV	1	--X-X--
GV0016X	EMERGENCY GO SUMMATION SIGNAL		GO	EV	1	--X-X--
GV0020X	DIGITAL STND WORD 1, BIT A	OFF	ON	EV	50	------X
GV0021X	DIGITAL STND WORD 1, BIT B	OFF	ON	EV	50	------X
GV0022X	DIGITAL STND WORD 1, BIT C	ON	OFF	EV	50	------X
GV0023X	DIGITAL STND WORD 1, BIT D	ON	OFF	EV	50	------X
GV0024X	DIGITAL STND WORD 1, BIT E	OFF	ON	EV	50	------X
GV0025X	DIGITAL STND WORD 1, BIT F	ON	OFF	EV	50	------X
GV0026X	DIGITAL STND WORD 1, BIT G	OFF	ON	EV	50	------X
GV0027X	DIGITAL STND WORD 1, BIT H	ON	OFF	EV	50	------X
GV0030X	C14-240 STD WORD BIT A=1 HI RATE	OFF	ON	EV	50	XXX-XX-
GV0031X	C14-240 STD WORD BIT B=1 HI RATE	OFF	ON	EV	50	XXX-XX-
GV0032X	C14-240 STD WORD BIT C=0 HI RATE	ON	OFF	EV	50	XXX-XX-
GV0033X	C14-240 STD WORD BIT D=1 HI RATE	OFF	ON	EV	50	XXX-XX-
GV0034X	C14-240 STD WORD BIT E=0 HI RATE	ON	OFF	EV	50	XXX-XX-
GV0035X	C14-240 STD WORD BIT F=1 HI RATE	OFF	ON	EV	50	XXX-XX-
GV0036X	C14-240 STD WORD BIT G=0 HI RATE	ON	OFF	EV	50	XXX-XX-
GV0037X	C14-240 STD WORD BIT H=0 HI RATE	ON	OFF	EV	50	XXX-XX-
GV0040X	C14-240 STD WORD BIT A=0 LO RATE	ON	OFF	EV	1	XXX-XX-
GV0041X	C14-240 STD WORD BIT B=0 LO RATE	ON	OFF	EV	1	XXX-XX-
GV0042X	C14-240 STD WORD BIT C=1 LO RATE	OFF	ON	EV	1	XXX-XX-
GV0043X	C14-240 STD WORD BIT D=0 LO RATE	ON	OFF	EV	1	XXX-XX-
GV0044X	C14-240 STD WORD BIT E=1 LO RATE	OFF	ON	EV	1	XXX-XX-
GV0045X	C14-240 STD WORD BIT F=0 LO RATE	ON	OFF	EV	1	XXX-XX-
GV0046X	C14-240 STD WORD BIT G=1 LO RATE	OFF	ON	EV	1	XXX-XX-
GV0047X	C14-240 STD WORD BIT H=1 LO RATE	OFF	ON	EV	1	XXX-XX-
GV0050X	463-1 STD WORD BIT A=1 LO RATE	OFF	ON	EV	1	X------
GV0051X	463-1 STD WORD BIT B=1 LO RATE	OFF	ON	EV	1	X------
GV0052X	463-1 STD WORD BIT C=1 LO RATE	OFF	ON	EV	1	X------
GV0053X	463-1 STD WORD BIT D=1 LO RATE	OFF	ON	EV	1	X------
GV0054X	463-1 STD WORD BIT E=0 LO RATE	ON	OFF	EV	1	X------
GV0055X	463-1 STD WORD BIT F=1 LO RATE	OFF	ON	EV	1	X------
GV0056X	463-1 STD WORD BIT G=0 LO RATE	ON	OFF	EV	1	X------
GV0057X	463-1 STD WORD BIT H=0 LO RATE	ON	OFF	EV	1	X------
GV0060X	463-1 STD WORD BIT A=0 HI RATE	ON	OFF	EV	50	X------
GV0061X	463-1 STD WORD BIT B=0 HI RATE	ON	OFF	EV	50	X------
GV0062X	463-1 STD WORD BIT C=0 HI RATE	ON	OFF	EV	50	X------
GV0063X	463-1 STD WORD BIT D=0 HI RATE	ON	OFF	EV	50	X------
GV0064X	463-1 STD WORD BIT E=1 HI RATE	OFF	ON	EV	50	X------
GV0065X	463-1 STD WORD BIT F=0 HI RATE	ON	OFF	EV	50	X------
GV0066X	463-1 STD WORD BIT G=1 HI RATE	OFF	ON	EV	50	X------
GV0067X	463-1 STD WORD BIT H=1 HI RATE	OFF	ON	EV	50	X------
GV0070X	463-2 STD WORD BIT A=1 LO RATE	OFF	ON	EV	1	X------
GV0071X	463-2 STD WORD BIT B=1 LO RATE	OFF	ON	EV	1	X------
GV0072X	463-2 STD WORD BIT C=1 LO RATE	OFF	ON	EV	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - GROUND SUPPORT EQUIPMENT

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GV0073X	463-2 STD WORD BIT D=1 LO RATE	OFF	ON	EV	1	X------
GV0074X	463-2 STD WORD BIT E=0 LO RATE	ON	OFF	EV	1	X------
GV0075X	463-2 STD WORD BIT F=0 LO RATE	ON	OFF	EV	1	X------
GV0076X	463-2 STD WORD BIT G=1 LO RATE	OFF	ON	EV	1	X------
GV0077X	463-2 STD WORD BIT H=0 LO RATE	ON	OFF	EV	1	X------
GV0080X	DIGITAL STND WORD 2, BIT A	ON	OFF	EV	1	------X
GV0081X	DIGITAL STND WORD 2, BIT B	ON	OFF	EV	1	------X
GV0082X	DIGITAL STND WORD 2, BIT C	OFF	ON	EV	1	------X
GV0083X	DIGITAL STND WORD 2, BIT D	OFF	ON	EV	1	------X
GV0084X	DIGITAL STND WORD 2, BIT E	ON	OFF	EV	1	------X
GV0085X	DIGITAL STND WORD 2, BIT F	OFF	ON	EV	1	------X
GV0086X	DIGITAL STND WORD 2, BIT G	ON	OFF	EV	1	------X
GV0087X	DIGITAL STND WORD 2, BIT H	OFF	ON	EV	1	------X
GV0090X	463-2 STD WORD BIT A=0 HI RATE	ON	OFF	EV	50	X------
GV0091X	463-2 STD WORD BIT B=0 HI RATE	ON	OFF	EV	50	X------
GV0092X	463-2 STD WORD BIT C=0 HI RATE	ON	OFF	EV	50	X------
GV0093X	463-2 STD WORD BIT D=0 HI RATE	ON	OFF	EV	50	X------
GV0094X	463-2 STD WORD BIT E=1 HI RATE	OFF	ON	EV	50	X------
GV0095X	463-2 STD WORD BIT F=1 HI RATE	OFF	ON	EV	50	X------
GV0096X	463-2 STD WORD BIT G=0 HI RATE	ON	OFF	EV	50	X------
GV0097X	463-2 STD WORD BIT H=1 HI RATE	OFF	ON	EV	50	X------
GV0100V	DTCS DAC-1 OUTPUT	- 31 +	31	VDC	100	------X
GV0101V	DTCS DAC-2 OUTPUT	- 31 +	31	VDC	100	------X
GV0102V	DTCS DAC-3 OUTPUT	- 31 +	31	VDC	100	------X
GV0103V	DTCS DAC-4 OUTPUT	- 31 +	31	VDC	100	------X
GV0104V	DTCS DAC-5 OUTPUT	- 31 +	31	VDC	100	------X
GV0105V	DTCS DAC-6 OUTPUT	- 31 +	31	VDC	100	------X
GV0106V	DTCS DAC-7 OUTPUT	- 31 +	31	VDC	100	------X
GV0113V	DTCS POWER PACK (+28V)	0 +	30	VDC	10	------X
GV0116V	DTCS DAC-8 OUTPUT	- 31 +	31	VDC	100	------X
GV0121V	PS1 OUTPUT VOLTS	0 +	40	VDC	1	--X----
GV0122X	PS2 AC ON		ON	EV	1	--X----
GV0123X	PS2 DC ON		ON	EV	1	--X----
GV0124X	PS2 BATTERY ON		ON	EV	1	--X----
GV0125V	CSM ACE VOLTS	0 +	40	VDC	1	--X----
GV0126X	PS1 PS5 PROTECTION		ON	EV	1	--X----
GV0127X	PS3 DC ON		ON	EV	1	--X----
GV0128X	PS3 BATTERY ON		ON	EV	1	--X----
GV0129X	PS4 DC ON		ON	EV	1	--X----
GV0130X	PS4 BATTERY ON		ON	EV	1	--X----
GV0131X	PS5 AC ON		ON	EV	1	--X----
GV0132X	PS5 DC ON		ON	EV	1	--X----
GV0133V	PS5 OUTPUT VOLTS	0 +	40	VDC	1	--X----
GV0134X	PS5 BATTERY ON		ON	EV	1	--X----
GV0135X	PS3 AC ON		ON	EV	1	--X----
GV0136X	PS4 AC ON		ON	EV	1	--X----
GV0138X	400 CPS PRIMARY ON		ON	EV	1	--X----
GV0140X	240-141 STD WORD BIT A=1 HI RATE	OFF	ON	EV	50	---X---
GV0141X	240-141 STD WORD BIT B=1 HI RATE	OFF	ON	EV	50	---X---
GV0142X	240-141 STD WORD BIT C=0 HI RATE	ON	OFF	EV	50	---X---

C S M M E A S U R E M E N T R E Q U I P E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - GROUND SUPPORT EQUIPMENT

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
GV0143X	240-141 STD WORD BIT D=1 HI RATE	OFF	ON	EV	50	---X---
GV0144X	240-141 STD WORD BIT E=0 HI RATE	ON	OFF	EV	50	---X---
GV0145X	240-141 STD WORD BIT F=1 HI RATE	OFF	ON	EV	50	---X---
GV0146X	240-141 STD WORD BIT G=0 HI RATE	ON	OFF	EV	50	---X---
GV0147X	240-141 STD WORD BIT H=0 HI RATE	ON	OFF	EV	50	---X---
GV0150X	240-141 STD WORD BIT A=0 LO RATE	ON	OFF	EV	1	---X---
GV0151X	240-141 STD WORD BIT B=0 LO RATE	ON	OFF	EV	1	---X---
GV0152X	240-141 STD WORD BIT C=1 LO RATE	OFF	ON	EV	1	---X---
GV0153X	240-141 STD WORD BIT D=0 LO RATE	ON	OFF	EV	1	---X---
GV0154X	240-141 STD WORD BIT E=1 LO RATE	OFF	ON	EV	1	---X---
GV0155X	240-141 STD WORD BIT F=0 LO RATE	ON	OFF	EV	1	---X---
GV0156X	240-141 STD WORD BIT G=1 LO RATE	OFF	ON	EV	1	---X---
GV0157X	240-141 STD WORD BIT H=1 LO RATE	OFF	ON	EV	1	---X---
GV0201V	CALIBRATE ANALOG MPX A-1	0 +	5	VDC	1	X------
GV0202V	CALIBRATE ANALOG MPX A-2	0 +	5	VDC	1	X------
GV0203V	CALIBRATE ANALOG MPX A-3	0 +	5	VDC	1	X------
GV0204V	CALIBRATE ANALOG MPX A-4	0 +	5	VDC	1	X------
GV0205V	CALIBRATE ANALOG MPX A-5-1	0 +	5	VDC	1	X------
GV0206V	CALIBRATE ANALOG MPX A-5-2	0 +	5	VDC	1	X------
GV0207V	CALIBRATE ANALOG MPX A-5-3	0 +	5	VDC	1	X------
GV0208V	CALIBRATE ANALOG MPX A-5-4	0 +	5	VDC	1	X------
GV0209V	CALIBRATE ANALOG MPX A-5-5	0 +	5	VDC	1	X------
GV0210V	CALIBRATE ANALOG MPX A-6	0 +	5	VDC	1	X------
GV0211V	CALIBRATE ANALOG MPX A-7	0 +	5	VDC	1	X------
GV0212V	CALIBRATE ANALOG MPX A-8	0 +	5	VDC	1	X------
GV0213V	CALIBRATE ANALOG MPX A-9	0 +	5	VDC	1	X------
GV0214V	CALIBRATE ANALOG MPX A-10	0 +	5	VDC	1	X------
GV0215V	CALIBRATE ANALOG MPX A-11	0 +	5	VDC	1	X------
GV0216V	CALIBRATE ANALOG MPX A-15	0 +	5	VDC	1	X------
GV0217V	CALIBRATE ANALOG MPX A-16	0 +	5	VDC	1	X------
GV0218V	CALIBRATE ANALOG MPX A-1	0 +	5	VDC	1	X------
GV0219V	CALIBRATE ANALOG MPX A-2	0 +	5	VDC	1	X------
GV0220V	CALIBRATE ANALOG MPX A-3	0 +	5	VDC	1	X------
GV0221V	CALIBRATE ANALOG MPX A-4	0 +	5	VDC	1	X------
GV0222V	CALIBRATE ANALOG MPX A-5-1	0 +	5	VDC	1	X------
GV0223V	CALIBRATE ANALOG MPX A-5-2	0 +	5	VDC	1	X------
GV0224V	CALIBRATE ANALOG MPX A-5-3	0 +	5	VDC	1	X------
GV0225V	CALIBRATE ANALOG MPX A-5-4	0 +	5	VDC	1	X------
GV0226V	CALIBRATE ANALOG MPX A-5-5	0 +	5	VDC	1	X------
GV0227V	CALIBRATE ANALOG MPX A-6	0 +	5	VDC	1	X------
GV0228V	CALIBRATE ANALOG MPX A-7	0 +	5	VDC	1	X------
GV0229V	CALIBRATE ANALOG MPX A-8	0 +	5	VDC	1	X------
GV0230V	CALIBRATE ANALOG MPX A-9	0 +	5	VDC	1	X------
GV0231V	CALIBRATE ANALOG MPX A-10	0 +	5	VDC	1	X------
GV0232V	CALIBRATE ANALOG MPX A-11	0 +	5	VDC	1	X------
GV0233V	CALIBRATE ANALOG MPX A-12-1	0 +	5	VDC	1	X------
GV0234V	CALIBRATE ANALOG MPX A-12-2	0 +	5	VDC	1	X------
GV0235V	CALIBRATE ANALOG MPX A-12-3	0 +	5	VDC	1	X------
GV0236V	CALIBRATE ANALOG MPX A-12-4	0 +	5	VDC	1	X------
GV0237V	CALIBRATE ANALOG MPX A-12-5	0 +	5	VDC	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - GROUND SUPPORT EQUIPMENT

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO	
GV0238V	CALIBRATE ANALOG MPX A-16	0 +	5	VDC	1	X------	
GV0239V	CALIBRATE ANALOG MPX A-17	0 +	5	VDC	1	X------	
GV0240V	CALIBRATE ANALOG MPX A-22	0 +	5	VDC	1	X------	
GV0241V	CALIBRATE ANALOG MPX A-23	0 +	5	VDC	1	X------	
GV0242V	CALIBRATE ANALOG MPX A-24-1	0 +	5	VDC	1	X------	
GV0243V	CALIBRATE ANALOG MPX A-24-2	0 +	5	VDC	1	X------	
GV0244V	CALIBRATE ANALOG MPX A-24-3	0 +	5	VDC	1	X------	
GV0245V	CALIBRATE ANALOG MPX A-24-4	0 +	5	VDC	1	X------	
GV0246V	CALIBRATE ANALOG MPX A-24-5	0 +	5	VDC	1	X------	
GV0247V	CALIBRATE ANALOG MPX A-27	0 +	5	VDC	1	X------	
GV0248V	CALIBRATE ANALOG MPX A-28	0 +	5	VDC	1	X------	
GV0249V	CALIBRATE ANALOG MPX A-29	0 +	5	VDC	1	X------	
GV0250V	CALIBRATE ANALOG MPX A-30	0 +	5	VDC	1	X------	
GV0251X	DTCS SELF TEST +6V RESP LINK 3		ON	EV	1	-X---X-	
GV0252X	DTCS SELF TEST RESPONSE 1 LINK 3		ON	EV	1	--X-X--	
GV0253X	DTCS SELF TEST RESPONSE 2 LINK 3		ON	EV	1	--X----	
GV0254X	DTCS SELF TEST RESPONSE LINK 4		ON	EV	1	---X---	
GV0255X	DTCS SELF TEST RESPONSE LINK 1	OPEN,	GRD	EV	1	------X	
GV0260X	PULSE DETECTOR RESET INDICATION		RESET	EV	1	-X-X-X-	ONY SC107 + SUBS , SC103 + SUBS
GV5001X	ISU POWER ON	OFF	ON	EV	1	-XXX-X-	
GV5002X	PIS RESET	OFF	ON	EV	1	-XXX-X-	
GV5008X	HELIUM STANDBY		STANDBY	EV	1	--X-X--	
GV5009X	HELIUM REMOTE		REMOTE	EV	1	--X-X--	
GV5010X	HELIUM EMERGENCY OVERRIDE		OVERIDE	EV	1	--X-X--	
GV5011X	OXYGEN STANDBY		STANDBY	EV	1	--X-X--	
GV5012X	OXYGEN REMOTE		REMOTE	EV	1	--X-X--	
GV5013X	OXYGEN EMERGENCY OVERRIDE		OVERIDE	EV	1	--X-X--	
GV5050V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	XXXX-X-	
GV5051V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	XXXX-X-	
GV5052V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	XXX-XX-	
GV5053V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	XXX-XX-	
GV5054X	C14-484 COOLING FAILURE	OFF	ON	EV	1	XXXX-X-	
GV5055X	C14-484 COOLING FAILURE	OFF	ON	EV	1	----X--	
GV5059V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	----X--	
GV5060V	ANALOG VOLTAGE STD C14-484	+4701	+4707	MVDC	1	----X--	
FV5290P	INLET HELIUM PRESS (PT-1)	0	10K	PSIG	1	--X-X--	
FV5291P	PURGE PRESS PT-4	0 +	0.1	PSIG	1	--X-X--	
FV5294X	LN2 LEVEL 75 GAL		LEVEL	EV	1	--X-X--	
FV5295X	TEMP HIGH		HIGH	EV	1	--X-X--	
FV5297T	HELIUM OUTLET GAS TEMP	- 300 -	50	DEGF	1	--X-X--	
FV5298X	REMOTE CONTROL INDICATION		REMOTE	EV	1	--X-X--	
FV5354X	EMERGENCY STOP		STOP	EV	1	--X-X--	

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6101T	TEMP CH A REF OVEN BAY 01 UPPER	+ 140	+ 153	DEGF	1	X------
EW6102T	TEMP CH A REF OVEN BAY 01 MIDDLE	+ 140	+ 153	DEGF	1	X------
EW6103T	TEMP CH A REF OVEN BAY 01 LOWER	+ 140	+ 153	DEGF	1	X------
EW6104T	TEMP CH A REF OVEN BAY 02 UPPER	+ 140	+ 153	DEGF	1	X------
EW6105T	TEMP CH A REF OVEN BAY 02 MIDDLE	+ 140	+ 153	DEGF	1	X------
EW6106T	TEMP CH A REF OVEN BAY 02 LOWER	+ 140	+ 153	DEGF	1	X------
EW6107T	TEMP CH A REF OVEN BAY 03 UPPER	+ 140	+ 153	DEGF	1	X------
EW6108T	TEMP CH A REF OVEN BAY 03 MIDDLE	+ 140	+ 153	DEGF	1	X------
EW6109T	TEMP CH A REF OVEN BAY 03 LOWER	+ 140	+ 153	DEGF	1	X------
EW6110T	TEMP CH A REF OVEN BAY 04 UPPER	+ 140	+ 153	DEGF	1	X------
EW6111T	TEMP CH A REF OVEN BAY 04 MIDDLE	+ 140	+ 153	DEGF	1	X------
EW6112T	TEMP CH A REF OVEN BAY 10 UPPER	+ 140	+ 153	DEGF	1	X------
EW6113T	TEMP CH A REF OVEN BAY 10 MIDDLE	+ 140	+ 153	DEGF	1	X------
EW6114T	TEMP CH A REF OVEN BAY 10 LOWER	+ 140	+ 153	DEGF	1	X------
EW6115T	TEMP CH A REF OVEN BAY 11 UPPER	+ 140	+ 153	DEGF	1	X------
EW6116T	TEMP CH A REF OVEN BAY 11 MIDDLE	+ 140	+ 150	DEGF	1	X------
EW6201K	VANE RADIOMETER SOLAR SIM MOD 01	0	+1.53	SUN	1	X------
EW6202K	VANE RADIOMETER SOLAR SIM MOD 02	0	+1.53	SUN	1	X------
EW6203K	VANE RADIOMETER SOLAR SIM MOD 03	0	+1.53	SUN	1	X------
EW6204K	VANE RADIOMETER SOLAR SIM MOD 04	0	+1.53	SUN	1	X------
EW6205K	VANE RADIOMETER SOLAR SIM MOD 05	0	+1.53	SUN	1	X------
EW6206K	VANE RADIOMETER SOLAR SIM MOD 06	0	+1.53	SUN	1	X------
EW6207K	VANE RADIOMETER SOLAR SIM MOD 07	0	+1.53	SUN	1	X------
EW6208K	VANE RADIOMETER SOLAR SIM MOD 08	0	+1.53	SUN	1	X------
EW6209K	VANE RADIOMETER SOLAR SIM MOD 09	0	+1.53	SUN	1	X------
EW6210K	VANE RADIOMETER SOLAR SIM MOD 10	0	+1.53	SUN	1	X------
EW6211K	VANE RADIOMETER SOLAR SIM MOD 11	0	+1.53	SUN	1	X------
EW6212K	VANE RADIOMETER SOLAR SIM MOD 12	0	+1.53	SUN	1	X------
EW6213K	VANE RADIOMETER SOLAR SIM MOD 13	0	+1.53	SUN	1	X------
EW6214K	VANE RADIOMETER SOLAR SIM MOD 14	0	+1.53	SUN	1	X------
EW6215K	VANE RADIOMETER SOLAR SIM MOD 15	0	+1.53	SUN	1	X------
EW6216K	VANE RADIOMETER SOLAR SIM MOD 16	0	+1.53	SUN	1	X------
EW6217K	VANE RADIOMETER SOLAR SIM MOD 17	0	+1.53	SUN	1	X------
EW6218K	VANE RADIOMETER SOLAR SIM MOD 18	0	+1.53	SUN	1	X------
EW6219K	VANE RADIOMETER SOLAR SIM MOD 19	0	+1.53	SUN	1	X------
EW6220K	VANE RADIOMETER SOLAR SIM MOD 20	0	+1.53	SUN	1	X------
EW6221K	VANE RADIOMETER SOLAR SIM MOD 21	0	+1.53	SUN	1	X------
EW6222K	VANE RADIOMETER SOLAR SIM MOD 22	0	+1.53	SUN	1	X------
EW6223K	VANE RADIOMETER SOLAR SIM MOD 23	0	+1.53	SUN	1	X------
EW6224K	VANE RADIOMETER SOLAR SIM MOD 24	0	+1.53	SUN	1	X------
EW6225K	VANE RADIOMETER SOLAR SIM MOD 25	0	+1.53	SUN	1	X------
EW6226K	VANE RADIOMETER SOLAR SIM MOD 26	0	+1.53	SUN	1	X------
EW6227K	VANE RADIOMETER SOLAR SIM MOD 27	0	+1.53	SUN	1	X------
EW6228K	VANE RADIOMETER SOLAR SIM MOD 28	0	+1.53	SUN	1	X------
EW6229K	VANE RADIOMETER SOLAR SIM MOD 29	0	+1.53	SUN	1	X------
EW6230K	VANE RADIOMETER SOLAR SIM MOD 30	0	+1.53	SUN	1	X------
EW6231K	VANE RADIOMETER SOLAR SIM MOD 31	0	+1.53	SUN	1	X------
EW6232K	VANE RADIOMETER SOLAR SIM MOD 32	0	+1.53	SUN	1	X------
EW6233K	VANE RADIOMETER SOLAR SIM MOD 33	0	+1.53	SUN	1	X------
EW6234K	VANE RADIOMETER SOLAR SIM MOD 34	0	+1.53	SUN	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6235K	VANE RADIOMETER SOLAR SIM MOD 35	0	+1.53	SUN	1	X------
EW6236K	VANE RADIOMETER SOLAR SIM MOD 36	0	+1.53	SUN	1	X------
EW6237K	VANE RADIOMETER SOLAR SIM MOD 37	0	+1.53	SUN	1	X------
EW6238K	VANE RADIOMETER SOLAR SIM MOD 38	0	+1.53	SUN	1	X------
EW6239K	VANE RADIOMETER SOLAR SIM MOD 39	0	+1.53	SUN	1	X------
EW6240K	VANE RADIOMETER SOLAR SIM MOD 40	0	+1.53	SUN	1	X------
EW6241K	VANE RADIOMETER SOLAR SIM MOD 41	0	+1.53	SUN	1	X------
EW6242K	VANE RADIOMETER SOLAR SIM MOD 42	0	+1.53	SUN	1	X------
EW6243K	VANE RADIOMETER SOLAR SIM MOD 43	0	+1.53	SUN	1	X------
EW6244K	VANE RADIOMETER SOLAR SIM MOD 44	0	+1.53	SUN	1	X------
EW6245K	VANE RADIOMETER SOLAR SIM MOD 45	0	+1.53	SUN	1	X------
EW6246K	VANE RADIOMETER SOLAR SIM MOD 46	0	+1.53	SUN	1	X------
EW6247K	VANE RADIOMETER SOLAR SIM MOD 47	0	+1.53	SUN	1	X------
EW6248K	VANE RADIOMETER SOLAR SIM MOD 48	0	+1.53	SUN	1	X------
EW6249K	VANE RADIOMETER SOLAR SIM MOD 49	0	+1.53	SUN	1	X------
EW6250K	VANE RADIOMETER SOLAR SIM MOD 50	0	+1.53	SUN	1	X------
EW6251K	VANE RADIOMETER SOLAR SIM MOD 51	0	+1.53	SUN	1	X------
EW6252K	VANE RADIOMETER SOLAR SIM MOD 52	0	+1.53	SUN	1	X------
EW6253K	VANE RADIOMETER SOLAR SIM MOD 53	0	+1.53	SUN	1	X------
EW6254K	VANE RADIOMETER SOLAR SIM MOD 54	0	+1.53	SUN	1	X------
EW6255K	VANE RADIOMETER SOLAR SIM MOD 55	0	+1.53	SUN	1	X------
EW6256K	VANE RADIOMETER SOLAR SIM MOD 56	0	+1.53	SUN	1	X------
EW6257K	VANE RADIOMETER SOLAR SIM MOD 57	0	+1.53	SUN	1	X------
EW6258K	VANE RADIOMETER SOLAR SIM MOD 58	0	+1.53	SUN	1	X------
EW6259K	VANE RADIOMETER SOLAR SIM MOD 59	0	+1.53	SUN	1	X------
EW6260K	VANE RADIOMETER SOLAR SIM MOD 60	0	+1.53	SUN	1	X------
EW6261K	VANE RADIOMETER SOLAR SIM MOD 61	0	+1.53	SUN	1	X------
EW6262K	VANE RADIOMETER SOLAR SIM MOD 62	0	+1.53	SUN	1	X------
EW6263K	VANE RADIOMETER SOLAR SIM MOD 63	0	+1.53	SUN	1	X------
EW6264K	VANE RADIOMETER SOLAR SIM MOD 64	0	+1.53	SUN	1	X------
EW6265K	VANE RADIOMETER SOLAR SIM MOD 65	0	+1.53	SUN	1	X------
EW6266K	VANE RADIOMETER SOLAR SIM MOD 66	0	+1.53	SUN	1	X------
EW6267K	VANE RADIOMETER SOLAR SIM MOD 67	0	+1.53	SUN	1	X------
EW6268K	VANE RADIOMETER SOLAR SIM MOD 68	0	+1.53	SUN	1	X------
EW6269K	VANE RADIOMETER SOLAR SIM MOD 69	0	+1.53	SUN	1	X------
EW6270K	VANE RADIOMETER SOLAR SIM MOD 70	0	+1.53	SUN	1	X------
EW6271K	VANE RADIOMETER SOLAR SIM MOD 71	0	+1.53	SUN	1	X------
EW6272K	VANE RADIOMETER SOLAR SIM MOD 72	0	+1.53	SUN	1	X------
EW6273K	VANE RADIOMETER SOLAR SIM MOD 73	0	+1.53	SUN	1	X------
EW6281K	SIDE SUN FILTERED RADIOMETER 1	0	+ 2	SUN	1	X------
EW6282K	SIDE SUN FILTERED RADIOMETER 2	0	+ 2	SUN	1	X------
EW6283K	SIDE SUN FILTERED RADIOMETER 3	0	+ 2	SUN	1	X------
EW6284K	SIDE SUN FILTERED RADIOMETER 4	0	+ 2	SUN	1	X------
EW6285K	SIDE SUN FILTERED RADIOMETER 5	0	+ 2	SUN	1	X------
EW6286K	TOP SUN FILTERED RADIOMETER 1	0	+ 2	SUN	1	X------
EW6287K	TOP SUN FILTERED RADIOMETER 2	0	+ 2	SUN	1	X------
EW6288K	TOP SUN FILTERED RADIOMETER 3	0	+ 2	SUN	1	X------
EW6289K	TOP SUN FILTERED RADIOMETER 4	0	+ 2	SUN	1	X------
EW6290K	TOP SUN FILTERED RADIOMETER 5	0	+ 2	SUN	1	X------
EW6291K	SIDE SUN PAINTED RADIOMETER 1 (CM)	0	+ 2	SUN	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6292K	SIDE SUN PAINTED RADIOMETER 2 (SM)	0 +	2	SUN	1	X------
EW6293K	SIDE SUN PAINTED RADIOMETER 3(RAD)	0 +	2	SUN	1	X------
EW6294K	TOP SUN PAINTED RADIOMETER 1 (C*)	0 +	2	SUN	1	X------
EW6411P	CH ION PR APPS-2421 (RANGE WORD)	0	10	TORR	1	X------
EW6412P	CH ION PR APPS-2422 (RANGE WORD)	0	10	TORR	1	X------
EW6413P	CH ALPHA PRESSURE APPS-1736 (RW)	0	10	TORR	1	X------
EW6414P	MANLOCK 1 ALPHA PR APPS-928 (RW)	0	10	TORR	1	X------
EW6415P	MANLOCK 2 ALPHA PR APPS-929 (RW)	0	10	TORR	1	X------
EW6416P	MANLOCK 3 ALPHA PR APPS-992 (RW)	0	10	TORR	1	X------
EW6451T	TEMP COLD WALL 0D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6452T	TEMP COLD WALL 0D 85.25 19.75	- 330 +	90	DEGF	1	X------
EW6453T	TEMP COLD WALL 3D 42.0 32.0	- 330 +	90	DEGF	1	X------
EW6454T	TEMP COLD WALL 3D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6455T	TEMP COLD WALL 4D 64.0 32.0	- 330 +	90	DEGF	1	X------
EW6456T	TEMP COLD WALL 6D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6457T	TEMP COLD WALL 6D 87.75 16.75	- 330 +	90	DEGF	1	X------
EW6458T	TEMP COLD WALL 10D 42.0 32.0	- 330 +	90	DEGF	1	X------
EW6459T	TEMP COLD WALL 10D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6460T	TEMP COLD WALL 12D 64.0 32.0	- 330 +	90	DEGF	1	X------
EW6461T	TEMP COLD WALL 12D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6462T	TEMP COLD WALL 12D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6463T	TEMP COLD WALL 18D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6464T	TEMP COLD WALL 18D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6465T	TEMP COLD WALL 20D 64.0 32.0	- 330 +	90	DEGF	1	X------
EW6466T	TEMP COLD WALL 22D 30.0 32.0	- 330 +	90	DEGF	1	X------
EW6467T	TEMP COLD WALL 22D 29.0 32.0	- 330 +	90	DEGF	1	X------
EW6468T	TEMP COLD WALL 22D 33.0 32.0	- 330 +	90	DEGF	1	X------
EW6469T	TEMP COLD WALL 22D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6470T	TEMP COLD WALL 24D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6471T	TEMP COLD WALL 24D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6472T	TEMP COLD WALL 30D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6473T	TEMP COLD WALL 30D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6474T	TEMP COLD WALL 30D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6475T	TEMP COLD WALL 30D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6476T	TEMP COLD WALL 30D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6477T	TEMP COLD WALL 30D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6478T	TEMP COLD WALL 30D 2.0 32.0	- 330 +	90	DEGF	1	X------
EW6479T	TEMP COLD WALL 30D 29.0 32.0	- 330 +	90	DEGF	1	X------
EW6480T	TEMP COLD WALL 30D 33.0 32.0	- 330 +	90	DEGF	1	X------
EW6481T	TEMP COLD WALL 30D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6482T	TEMP COLD WALL 36D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6483T	TEMP COLD WALL 36D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6484T	TEMP COLD WALL 36D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6485T	TEMP COLD WALL 36D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6486T	TEMP COLD WALL 36D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6487T	TEMP COLD WALL 36D 87.0 14.25	- 330 +	90	DEGF	1	X------
EW6488T	TEMP COLD WALL 42D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6489T	TEMP COLD WALL 42D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6490T	TEMP COLD WALL 42D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6491T	TEMP COLD WALL 42D 60.0 29.0	- 330 +	90	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION				DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSD CY4 SO
EW6492T	TEMP COLD WALL	42D	64.5	29.0	- 330 +	90	DEGF	1	X------
EW6493T	TEMP COLD WALL	42D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6494T	TEMP COLD WALL	48D	2.0	29.0	- 330 +	90	DEGF	1	X------
EW6495T	TEMP COLD WALL	48D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6496T	TEMP COLD WALL	48D	33.0	27.5	- 330 +	90	DEGF	1	X------
EW6497T	TEMP COLD WALL	48D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6498T	TEMP COLD WALL	48D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6499T	TEMP COLD WALL	48D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6500T	TEMP COLD WALL	51D	15.0	36.0	- 330 +	90	DEGF	1	X------
EW6501T	TEMP COLD WALL	51D	23.5	36.0	- 330 +	90	DEGF	1	X------
EW6502T	TEMP COLD WALL	54D	2.0	29.0	- 330 +	90	DEGF	1	X------
EW6503T	TEMP COLD WALL	54D	33.0	29.0	- 330 +	90	DEGF	1	X------
EW6504T	TEMP COLD WALL	54D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6505T	TEMP COLD WALL	54D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6506T	TEMP COLD WALL	54D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6507T	TEMP COLD WALL	57D	11.0	33.5	- 330 +	90	DEGF	1	X------
EW6508T	TEMP COLD WALL	57D	19.5	33.5	- 330 +	90	DEGF	1	X------
EW6509T	TEMP COLD WALL	57D	23.5	33.5	- 330 +	90	DEGF	1	X------
EW6510T	TEMP COLD WALL	57D	32.0	33.5	- 330 +	90	DEGF	1	X------
EW6511T	TEMP COLD WALL	60D	45.5	27.5	- 330 +	90	DEGF	1	X------
EW6512T	TEMP COLD WALL	60D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6513T	TEMP COLD WALL	60D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6514T	TEMP COLD WALL	60D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6515T	TEMP COLD WALL	63D	8.5	31.5	- 330 +	90	DEGF	1	X------
EW6516T	TEMP COLD WALL	63D	19.5	31.5	- 330 +	90	DEGF	1	X------
EW6517T	TEMP COLD WALL	63D	23.5	31.5	- 330 +	90	DEGF	1	X------
EW6518T	TEMP COLD WALL	63D	34.5	31.5	- 330 +	90	DEGF	1	X------
EW6519T	TEMP COLD WALL	66D	39.0	29.0	- 330 +	90	DEGF	1	X------
EW6520T	TEMP COLD WALL	66D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6521T	TEMP COLD WALL	66D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6522T	TEMP COLD WALL	66D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6523T	TEMP COLD WALL	69D	7.0	28.5	- 330 +	90	DEGF	1	X------
EW6524T	TEMP COLD WALL	69D	19.5	28.5	- 330 +	90	DEGF	1	X------
EW6525T	TEMP COLD WALL	69D	23.5	28.5	- 330 +	90	DEGF	1	X------
EW6526T	TEMP COLD WALL	69D	36.0	28.5	- 330 +	90	DEGF	1	X------
EW6527T	TEMP COLD WALL	72D	45.5	27.5	- 330 +	90	DEGF	1	X------
EW6528T	TEMP COLD WALL	72D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6529T	TEMP COLD WALL	72D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6530T	TEMP COLD WALL	72D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6531T	TEMP COLD WALL	73D	2.0	29.0	- 330 +	90	DEGF	1	X------
EW6532T	TEMP COLD WALL	73D	19.5	28.5	- 330 +	90	DEGF	1	X------
EW6533T	TEMP COLD WALL	73D	23.5	28.5	- 330 +	90	DEGF	1	X------
EW6534T	TEMP COLD WALL	75D	5.5	27.5	- 330 +	90	DEGF	1	X------
EW6535T	TEMP COLD WALL	75D	19.5	27.5	- 330 +	90	DEGF	1	X------
EW6536T	TEMP COLD WALL	75D	23.5	27.5	- 330 +	90	DEGF	1	X------
EW6537T	TEMP COLD WALL	75D	38.5	27.5	- 330 +	90	DEGF	1	X------
EW6538T	TEMP COLD WALL	78D	42.0	29.0	- 330 +	90	DEGF	1	X------
EW6539T	TEMP COLD WALL	78D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6540T	TEMP COLD WALL	78D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6541T	TEMP COLD WALL	78D	87.5	14.3	- 330 +	90	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	PR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6542T	TEMP COLD WALL 81D 4.5 26.5	- 330	+ 90	DEGF	1	X------
EW6543T	TEMP COLD WALL 81D 19.5 26.5	- 330	+ 90	DEGF	1	X------
EW6544T	TEMP COLD WALL 81D 23.5 26.5	- 330	+ 90	DEGF	1	X------
EW6545T	TEMP COLD WALL 81D 39.5 26.5	- 330	+ 90	DEGF	1	X------
EW6546T	TEMP COLD WALL 84D 45.5 27.5	- 330	+ 90	DEGF	1	X------
EW6547T	TEMP COLD WALL 84D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6548T	TEMP COLD WALL 84D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6549T	TEMP COLD WALL 84D 87.75 16.75	- 330	+ 90	DEGF	1	X------
EW6550T	TEMP COLD WALL 87D 40.0 26.5	- 330	+ 90	DEGF	1	X------
EW6551T	TEMP COLD WALL 87D 19.5 26.5	- 330	+ 90	DEGF	1	X------
EW6552T	TEMP COLD WALL 87D 23.5 26.5	- 330	+ 90	DEGF	1	X------
EW6553T	TEMP COLD WALL 87D 40.0 26.5	- 330	+ 90	DEGF	1	X------
EW6554T	TEMP COLD WALL 90D 44.0 29.0	- 330	+ 90	DEGF	1	X------
EW6555T	TEMP COLD WALL 90D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6556T	TEMP COLD WALL 90D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6557T	TEMP COLD WALL 90D 85.25 15.75	- 330	+ 90	DEGF	1	X------
EW6558T	TEMP COLD WALL 93D 4.0 26.5	- 330	+ 90	DEGF	1	X------
EW6559T	TEMP COLD WALL 93D 19.5 26.5	- 330	+ 90	DEGF	1	X------
EW6560T	TEMP COLD WALL 93D 23.5 26.5	- 330	+ 90	DEGF	1	X------
EW6561T	TEMP COLD WALL 93D 40.0 26.5	- 330	+ 90	DEGF	1	X------
EW6562T	TEMP COLD WALL 96D 45.5 27.5	- 330	+ 90	DEGF	1	X------
EW6563T	TEMP COLD WALL 96D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6564T	TEMP COLD WALL 96D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6565T	TEMP COLD WALL 96D 87.75 16.75	- 330	+ 90	DEGF	1	X------
EW6566T	TEMP COLD WALL 99D 4.5 26.5	- 330	+ 90	DEGF	1	X------
EW6567T	TEMP COLD WALL 99D 19.5 26.5	- 330	+ 90	DEGF	1	X------
EW6568T	TEMP COLD WALL 99D 29.5 26.5	- 330	+ 90	DEGF	1	X------
EW6569T	TEMP COLD WALL 99D 39.5 26.5	- 330	+ 90	DEGF	1	X------
EW6570T	TEMP COLD WALL 102D 42.0 29.0	- 330	+ 90	DEGF	1	X------
EW6571T	TEMP COLD WALL 102D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6572T	TEMP COLD WALL 102D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6573T	TEMP COLD WALL 102D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6574T	TEMP COLD WALL 105D 5.5 27.5	- 330	+ 90	DEGF	1	X------
EW6575T	TEMP COLD WALL 105D 19.5 27.5	- 330	+ 90	DEGF	1	X------
EW6576T	TEMP COLD WALL 105D 23.5 27.5	- 330	+ 90	DEGF	1	X------
EW6577T	TEMP COLD WALL 105D 38.5 27.5	- 330	+ 90	DEGF	1	X------
EW6578T	TEMP COLD WALL 107D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6579T	TEMP COLD WALL 107D 19.5 28.5	- 330	+ 90	DEGF	1	X------
EW6580T	TEMP COLD WALL 107D 23.5 28.5	- 330	+ 90	DEGF	1	X------
EW6581T	TEMP COLD WALL 108D 45.5 27.5	- 330	+ 90	DEGF	1	X------
EW6582T	TEMP COLD WALL 108D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6583T	TEMP COLD WALL 108D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6584T	TEMP COLD WALL 108D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6585T	TEMP COLD WALL 111D 7.0 28.5	- 330	+ 90	DEGF	1	X------
EW6586T	TEMP COLD WALL 111D 19.5 28.5	- 330	+ 90	DEGF	1	X------
EW6587T	TEMP COLD WALL 111D 23.5 28.5	- 330	+ 90	DEGF	1	X------
EW6588T	TEMP COLD WALL 111D 36.0 28.5	- 330	+ 90	DEGF	1	X------
EW6589T	TEMP COLD WALL 114D 39.0 29.0	- 330	+ 90	DEGF	1	X------
EW6590T	TEMP COLD WALL 114D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6591T	TEMP COLD WALL 114D 64.0 29.0	- 330	+ 90	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	DATA RANGE HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6592T	TEMP COLD WALL 114D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6593T	TEMP COLD WALL 117D 8.5 31.5	- 330	+ 90	DEGF	1	X------
EW6594T	TEMP COLD WALL 117D 19.5 31.5	- 330	+ 90	DEGF	1	X------
EW6595T	TEMP COLD WALL 117D 23.5 31.5	- 330	+ 90	DEGF	1	X------
EW6596T	TEMP COLD WALL 117D 34.5 31.5	- 330	+ 90	DEGF	1	X------
EW6597T	TEMP COLD WALL 120D 45.5 27.5	- 330	+ 90	DEGF	1	X------
EW6598T	TEMP COLD WALL 120D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6599T	TEMP COLD WALL 120D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6600T	TEMP COLD WALL 120D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6601T	TEMP COLD WALL 123D 11.0 33.5	- 330	+ 90	DEGF	1	X------
EW6602T	TEMP COLD WALL 123D 19.5 33.5	- 330	+ 90	DEGF	1	X------
EW6603T	TEMP COLD WALL 123D 23.5 33.5	- 330	+ 90	DEGF	1	X------
EW6604T	TEMP COLD WALL 123D 32.0 33.5	- 330	+ 90	DEGF	1	X------
EW6605T	TEMP COLD WALL 126D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6606T	TEMP COLD WALL 126D 33.0 29.0	- 330	+ 90	DEGF	1	X------
EW6607T	TEMP COLD WALL 126D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6608T	TEMP COLD WALL 126D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6609T	TEMP COLD WALL 126D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6610T	TEMP COLD WALL 129D 15.0 36.0	- 330	+ 90	DEGF	1	X------
EW6611T	TEMP COLD WALL 129D 23.5 36.0	- 330	+ 90	DEGF	1	X------
EW6612T	TEMP COLD WALL 132D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6613T	TEMP COLD WALL 132D 29.0 29.0	- 330	+ 90	DEGF	1	X------
EW6614T	TEMP COLD WALL 132D 33.0 27.5	- 330	+ 90	DEGF	1	X------
EW6615T	TEMP COLD WALL 132D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6616T	TEMP COLD WALL 132D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6617T	TEMP COLD WALL 132D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6618T	TEMP COLD WALL 138D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6619T	TEMP COLD WALL 138D 29.0 29.0	- 330	+ 90	DEGF	1	X------
EW6620T	TEMP COLD WALL 138D 33.0 29.0	- 330	+ 90	DEGF	1	X------
EW6621T	TEMP COLD WALL 138D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6622T	TEMP COLD WALL 138D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6623T	TEMP COLD WALL 138D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6624T	TEMP COLD WALL 144D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6625T	TEMP COLD WALL 144D 29.0 29.0	- 330	+ 90	DEGF	1	X------
EW6626T	TEMP COLD WALL 144D 33.0 27.5	- 330	+ 90	DEGF	1	X------
EW6627T	TEMP COLD WALL 144D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6628T	TEMP COLD WALL 144D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6629T	TEMP COLD WALL 144D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6630T	TEMP COLD WALL 150D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6631T	TEMP COLD WALL 150D 29.0 29.0	- 330	+ 90	DEGF	1	X------
EW6632T	TEMP COLD WALL 150D 33.0 29.0	- 330	+ 90	DEGF	1	X------
EW6633T	TEMP COLD WALL 150D 60.0 29.0	- 330	+ 90	DEGF	1	X------
EW6634T	TEMP COLD WALL 150D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6635T	TEMP COLD WALL 150D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6636T	TEMP COLD WALL 156D 2.0 29.0	- 330	+ 90	DEGF	1	X------
EW6637T	TEMP COLD WALL 156D 29.0 29.0	- 330	+ 90	DEGF	1	X------
EW6638T	TEMP COLD WALL 156D 33.0 27.5	- 330	+ 90	DEGF	1	X------
EW6639T	TEMP COLD WALL 156D 60.0 27.5	- 330	+ 90	DEGF	1	X------
EW6640T	TEMP COLD WALL 156D 64.0 29.0	- 330	+ 90	DEGF	1	X------
EW6641T	TEMP COLD WALL 156D 87.5 14.25	- 330	+ 90	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR FA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6642T	TEMP COLD WALL 162D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6643T	TEMP COLD WALL 162D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6644T	TEMP COLD WALL 162D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6645T	TEMP COLD WALL 162D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6646T	TEMP COLD WALL 162D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6647T	TEMP COLD WALL 162D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6648T	TEMP COLD WALL 168D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6649T	TEMP COLD WALL 168D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6650T	TEMP COLD WALL 168D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6651T	TEMP COLD WALL 168D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6652T	TEMP COLD WALL 168D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6653T	TEMP COLD WALL 168D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6654T	TEMP COLD WALL 174D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6655T	TEMP COLD WALL 174D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6656T	TEMP COLD WALL 174D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6657T	TEMP COLD WALL 174D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6658T	TEMP COLD WALL 174D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6659T	TEMP COLD WALL 174D 87.75 19.75	- 330 +	90	DEGF	1	X------
EW6660T	TEMP COLD WALL 180D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6661T	TEMP COLD WALL 180D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6662T	TEMP COLD WALL 180D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6663T	TEMP COLD WALL 180D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6664T	TEMP COLD WALL 180D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6665T	TEMP COLD WALL 180D 85.25 19.75	- 330 +	90	DEGF	1	X------
EW6666T	TEMP COLD WALL 186D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6667T	TEMP COLD WALL 186D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6668T	TEMP COLD WALL 186D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6669T	TEMP COLD WALL 186D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6670T	TEMP COLD WALL 186D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6671T	TEMP COLD WALL 186D 87.75 16.75	- 330 +	90	DEGF	1	X------
EW6672T	TEMP COLD WALL 192D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6673T	TEMP COLD WALL 192D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6674T	TEMP COLD WALL 192D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6675T	TEMP COLD WALL 192D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6676T	TEMP COLD WALL 192D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6677T	TEMP COLD WALL 192D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6678T	TEMP COLD WALL 198D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6679T	TEMP COLD WALL 198D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6680T	TEMP COLD WALL 198D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6681T	TEMP COLD WALL 198D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6682T	TEMP COLD WALL 198D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6683T	TEMP COLD WALL 198D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6684T	TEMP COLD WALL 204D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6685T	TEMP COLD WALL 204D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6686T	TEMP COLD WALL 204D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6687T	TEMP COLD WALL 204D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6688T	TEMP COLD WALL 204D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6689T	TEMP COLD WALL 204D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6690T	TEMP COLD WALL 208D 2.0 32.0	- 330 +	90	DEGF	1	X------
EW6691T	TEMP COLD WALL 210D 13.0 29.0	- 330 +	90	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION				DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6692T	TEMP COLD WALL	210D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6693T	TEMP COLD WALL	210D	33.0	29.0	- 330 +	90	DEGF	1	X------
EW6694T	TEMP COLD WALL	210D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6695T	TEMP COLD WALL	210D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6696T	TEMP COLD WALL	210D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6697T	TEMP COLD WALL	212D	10.0	32.0	- 330 +	90	DEGF	1	X------
EW6698T	TEMP COLD WALL	216D	13.0	29.0	- 330 +	90	DEGF	1	X------
EW6699T	TEMP COLD WALL	216D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6700T	TEMP COLD WALL	216D	33.0	27.5	- 330 +	90	DEGF	1	X------
EW6701T	TEMP COLD WALL	216D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6702T	TEMP COLD WALL	216D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6703T	TEMP COLD WALL	216D	87.5	29.0	- 330 +	90	DEGF	1	X------
EW6704T	TEMP COLD WALL	218D	2.0	32.0	- 330 +	90	DEGF	1	X------
EW6705T	TEMP COLD WALL	221D	33.0	32.0	- 330 +	90	DEGF	1	X------
EW6706T	TEMP COLD WALL	221D	64.0	32.0	- 330 +	90	DEGF	1	X------
EW6707T	TEMP COLD WALL	222D	13.0	29.0	- 330 +	90	DEGF	1	X------
EW6708T	TEMP COLD WALL	222D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6709T	TEMP COLD WALL	222D	44.0	29.0	- 330 +	90	DEGF	1	X------
EW6710T	TEMP COLD WALL	222D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6711T	TEMP COLD WALL	222D	75.0	29.0	- 330 +	90	DEGF	1	X------
EW6712T	TEMP COLD WALL	222D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6713T	TEMP COLD WALL	225D	2.0	32.0	- 330 +	90	DEGF	1	X------
EW6714T	TEMP COLD WALL	228D	13.0	29.0	- 330 +	90	DEGF	1	X------
EW6715T	TEMP COLD WALL	228D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6716T	TEMP COLD WALL	228D	41.0	32.0	- 330 +	90	DEGF	1	X------
EW6717T	TEMP COLD WALL	228D	44.0	27.5	- 330 +	90	DEGF	1	X------
EW6718T	TEMP COLD WALL	228D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6719T	TEMP COLD WALL	228D	72.0	32.0	- 330 +	90	DEGF	1	X------
EW6720T	TEMP COLD WALL	228D	75.0	29.0	- 330 +	90	DEGF	1	X------
EW6721T	TEMP COLD WALL	228D	87.5	29.0	- 330 +	90	DEGF	1	X------
EW6722T	TEMP COLD WALL	232D	10.0	32.0	- 330 +	90	DEGF	1	X------
EW6723T	TEMP COLD WALL	234D	13.0	29.0	- 330 +	90	DEGF	1	X------
EW6724T	TEMP COLD WALL	234D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6725T	TEMP COLD WALL	234D	44.0	29.0	- 330 +	90	DEGF	1	X------
EW6726T	TEMP COLD WALL	234D	60.0	29.0	- 330 +	90	DEGF	1	X------
EW6727T	TEMP COLD WALL	234D	75.0	29.0	- 330 +	90	DEGF	1	X------
EW6728T	TEMP COLD WALL	234D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6729T	TEMP COLD WALL	235D	33.0	32.0	- 330 +	90	DEGF	1	X------
EW6730T	TEMP COLD WALL	235D	64.0	32.0	- 330 +	90	DEGF	1	X------
EW6731T	TEMP COLD WALL	236D	2.0	32.0	- 330 +	90	DEGF	1	X------
EW6732T	TEMP COLD WALL	240D	2.0	29.0	- 330 +	90	DEGF	1	X------
EW6733T	TEMP COLD WALL	240D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6734T	TEMP COLD WALL	240D	33.0	27.5	- 330 +	90	DEGF	1	X------
EW6735T	TEMP COLD WALL	240D	60.0	27.5	- 330 +	90	DEGF	1	X------
EW6736T	TEMP COLD WALL	240D	64.0	29.0	- 330 +	90	DEGF	1	X------
EW6737T	TEMP COLD WALL	240D	87.5	14.25	- 330 +	90	DEGF	1	X------
EW6738T	TEMP COLD WALL	246D	2.0	29.0	- 330 +	90	DEGF	1	X------
EW6739T	TEMP COLD WALL	246D	29.0	29.0	- 330 +	90	DEGF	1	X------
EW6740T	TEMP COLD WALL	246D	33.0	29.0	- 330 +	90	DEGF	1	X------
EW6741T	TEMP COLD WALL	246D	60.0	29.0	- 330 +	90	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6742T	TEMP COLD WALL 246D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6743T	TEMP COLD WALL 246D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6744T	TEMP COLD WALL 252D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6745T	TEMP COLD WALL 252D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6746T	TEMP COLD WALL 252D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6747T	TEMP COLD WALL 252D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6748T	TEMP COLD WALL 252D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6749T	TEMP COLD WALL 252D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6750T	TEMP COLD WALL 258D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6751T	TEMP COLD WALL 258D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6752T	TEMP COLD WALL 258D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6753T	TEMP COLD WALL 258D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6754T	TEMP COLD WALL 258D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6755T	TEMP COLD WALL 258D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6756T	TEMP COLD WALL 264D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6757T	TEMP COLD WALL 264D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6758T	TEMP COLD WALL 264D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6759T	TEMP COLD WALL 264D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6760T	TEMP COLD WALL 264D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6761T	TEMP COLD WALL 264D 87.75 16.75	- 330 +	90	DEGF	1	X------
EW6762T	TEMP COLD WALL 270D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6763T	TEMP COLD WALL 270D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6764T	TEMP COLD WALL 270D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6765T	TEMP COLD WALL 270D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6766T	TEMP COLD WALL 270D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6767T	TEMP COLD WALL 270D 85.25 19.75	- 330 +	90	DEGF	1	X------
EW6768T	TEMP COLD WALL 276D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6769T	TEMP COLD WALL 276D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6770T	TEMP COLD WALL 276D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6771T	TEMP COLD WALL 276D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6772T	TEMP COLD WALL 276D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6773T	TEMP COLD WALL 276D 87.75 16.75	- 330 +	90	DEGF	1	X------
EW6774T	TEMP COLD WALL 282D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6775T	TEMP COLD WALL 282D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6776T	TEMP COLD WALL 282D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6777T	TEMP COLD WALL 282D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6778T	TEMP COLD WALL 282D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6779T	TEMP COLD WALL 282D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6780T	TEMP COLD WALL 288D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6781T	TEMP COLD WALL 288D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6782T	TEMP COLD WALL 288D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6783T	TEMP COLD WALL 288D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6784T	TEMP COLD WALL 288D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6785T	TEMP COLD WALL 288D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6786T	TEMP COLD WALL 294D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6787T	TEMP COLD WALL 294D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6788T	TEMP COLD WALL 294D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6789T	TEMP COLD WALL 294D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6790T	TEMP COLD WALL 294D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6791T	TEMP COLD WALL 294D 87.5 14.25	- 330 +	90	DEGF	1	X------

CSM MEASUREMENT REQUIREMENTS

FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6792T	TEMP COLD WALL 300D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6793T	TEMP COLD WALL 300D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6794T	TEMP COLD WALL 300D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6795T	TEMP COLD WALL 300D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6796T	TEMP COLD WALL 300D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6797T	TEMP COLD WALL 300D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6798T	TEMP COLD WALL 306D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6799T	TEMP COLD WALL 306D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6800T	TEMP COLD WALL 306D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6801T	TEMP COLD WALL 306D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6802T	TEMP COLD WALL 306D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6803T	TEMP COLD WALL 306D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6804T	TEMP COLD WALL 312D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6805T	TEMP COLD WALL 312D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6806T	TEMP COLD WALL 312D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6807T	TEMP COLD WALL 312D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6808T	TEMP COLD WALL 312D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6809T	TEMP COLD WALL 312D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6810T	TEMP COLD WALL 318D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6811T	TEMP COLD WALL 318D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6812T	TEMP COLD WALL 318D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6813T	TEMP COLD WALL 318D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6814T	TEMP COLD WALL 318D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6815T	TEMP COLD WALL 318D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6816T	TEMP COLD WALL 324D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6817T	TEMP COLD WALL 324D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6818T	TEMP COLD WALL 324D 33.0 27.5	- 330 +	90	DEGF	1	X------
EW6819T	TEMP COLD WALL 324D 60.0 27.5	- 330 +	90	DEGF	1	X------
EW6820T	TEMP COLD WALL 324D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6821T	TEMP COLD WALL 324D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6822T	TEMP COLD WALL 330D 2.0 29.0	- 330 +	90	DEGF	1	X------
EW6823T	TEMP COLD WALL 330D 29.0 29.0	- 330 +	90	DEGF	1	X------
EW6824T	TEMP COLD WALL 330D 33.0 29.0	- 330 +	90	DEGF	1	X------
EW6825T	TEMP COLD WALL 330D 60.0 29.0	- 330 +	90	DEGF	1	X------
EW6826T	TEMP COLD WALL 330D 64.0 29.0	- 330 +	90	DEGF	1	X------
EW6827T	TEMP COLD WALL 330D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6828T	TEMP COLD WALL 330D 2.0 32.0	- 330 +	90	DEGF	1	X------
EW6829T	TEMP COLD WALL 330D 29.0 32.0	- 330 +	90	DEGF	1	X------
EW6830T	TEMP COLD WALL 330D 33.0 32.0	- 330 +	90	DEGF	1	X------
EW6831T	TEMP COLD WALL 330D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6832T	TEMP COLD WALL 336D 75.0 32.0	- 330 +	90	DEGF	1	X------
EW6833T	TEMP COLD WALL 336D 87.5 32.0	- 330 +	90	DEGF	1	X------
EW6834T	TEMP COLD WALL 338D 2.0 32.0	- 330 +	90	DEGF	1	X------
EW6835T	TEMP COLD WALL 338D 29.0 32.0	- 330 +	90	DEGF	1	X------
EW6836T	TEMP COLD WALL 336D 33.0 32.0	- 330 +	90	DEGF	1	X------
EW6837T	TEMP COLD WALL 338D 60.0 32.0	- 330 +	90	DEGF	1	X------
EW6838T	TEMP COLD WALL 340D 64.0 32.0	- 330 +	90	DEGF	1	X------
EW6839T	TEMP COLD WALL 342D 75.0 29.0	- 330 +	90	DEGF	1	X------
EW6840T	TEMP COLD WALL 342D 87.5 14.25	- 330 +	90	DEGF	1	X------
EW6841T	TEMP COLD WALL 348D 64.0 32.0	- 330 +	90	DEGF	1	X------

C S M M E A S U R E M E N T R E Q U I R E M E N T S

F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M ACE-S/C DOWNLINK

SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SD
EW6842T	TEMP COLD WALL 348D 75.0 29.0	- 330	+ 90	DEGF	1	X------
EW6843T	TEMP COLD WALL 348D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6844T	TEMP COLD WALL 350D 42.0 32.0	- 330	+ 90	DEGF	1	X------
EW6845T	TEMP COLD WALL 350D 60.0 32.0	- 330	+ 90	DEGF	1	X------
EW6846T	TEMP COLD WALL 354D 75.0 29.0	- 330	+ 90	DEGF	1	X------
EW6847T	TEMP COLD WALL 354D 87.5 14.25	- 330	+ 90	DEGF	1	X------
EW6848T	TEMP COLD WALL 356D 64.0 32.0	- 330	+ 90	DEGF	1	X------
EW6849T	TEMP COLD WALL 357D 42.0 32.0	- 330	+ 90	DEGF	1	X------
EW6850T	TEMP COLD WALL 357D 60.0 32.0	- 330	+ 90	DEGF	1	X------
EW6861T	CHAMBER FREE AIR TEMPERATURE 1	- 360	+ 265	DEGF	1	X------
EW6862T	CHAMBER FREE AIR TEMPERATURE 2	- 360	+ 265	DEGF	1	X------
EW6863T	CHAMBER FREE AIR TEMPERATURE 3	- 360	+ 265	DEGF	1	X------
EW6864T	CHAMBER FREE AIR TEMPERATURE 4	- 360	+ 265	DEGF	1	X------
EW6871T	TEMP LUNAR PLANE 10D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6872T	TEMP LUNAR PLANE 55D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6873T	TEMP LUNAR PLANE 100D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6874T	TEMP LUNAR PLANE 145D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6875T	TEMP LUNAR PLANE 190D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6876T	TEMP LUNAR PLANE 235D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6877T	TEMP LUNAR PLANE 280D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6878T	TEMP LUNAR PLANE 325D 0 20.5	- 360	+ 265	DEGF	1	X------
EW6879T	TEMP LUNAR PLANE 43D 0 13.5	- 360	+ 265	DEGF	1	X------
EW6880T	TEMP LUNAR PLANE 133D 0 13.5	- 360	+ 265	DEGF	1	X------
EW6881T	TEMP LUNAR PLANE 223D 0 13.5	- 360	+ 265	DEGF	1	X------
EW6882T	TEMP LUNAR PLANE 313D 0 13.5	- 360	+ 265	DEGF	1	X------
EW6884T	TEMP LOX DETANK BOTTOM	+ 73	+ 306	DEGK	1	X------
EW6885T	TEMP LOX DETANK BOTTOM 5 UP	+ 73	+ 306	DEGK	1	X------
EW6886T	TEMP LOX DETANK 6 INCHES UP	+ 73	+ 306	DEGK	1	X------
EW6887T	TEMP LOX DETANK 9 INCHES UP	+ 73	+ 306	DEGK	1	X------
EW6888T	TEMP LOX DETANK 12 INCHES UP	+ 73	+ 306	DEGK	1	X------
EW6889T	TEMP LOX DETANK 15 INCHES UP	+ 73	+ 306	DEGK	1	X------
EW6890H	POSITION LUNAR PLANE	0	+ 360	DEG	1	X------
EW6895R	RATE, LUNAR PLANE ROTATION	-10.8	+10.8	DG/S	1	X------
EW6901K	RADIOMETER 1 TOP SUN	0	+ 2	SUN	1	X------
EW6902K	RADIOMETER 2 TOP SUN	0	+ 2	SUN	1	X------
EW6903K	RADIOMETER 3 TOP SUN	0	+ 2	SUN	1	X------
EW6904K	RADIOMETER 4 TOP SUN	0	+ 2	SUN	1	X------
EW6905K	RADIOMETER 5 TOP SUN	0	+ 2	SUN	1	X------
EW6906K	RADIOMETER 6 TOP SUN	0	+ 2	SUN	1	X------
EW6907K	RADIOMETER 7 TOP SUN	0	+ 2	SUN	1	X------
EW6908K	RADIOMETER 8 TOP SUN	0	+ 2	SUN	1	X------
EW6909K	RADIOMETER 9 TOP SUN	0	+ 2	SUN	1	X------
EW6910K	RADIOMETER 10 TOP SUN	0	+ 2	SUN	1	X------
EW6911K	RADIOMETER 11 TOP SUN	0	+ 2	SUN	1	X------
EW6912K	RADIOMETER 12 TOP SUN	0	+ 2	SUN	1	X------
EW6913K	RADIOMETER 13 TOP SUN	0	+ 2	SUN	1	X------
EW6914K	RADIOMETER 14 TOP SUN	0	+ 2	SUN	1	X------
EW6915K	RADIOMETER 15 TOP SUN	0	+ 2	SUN	1	X------
EW6916K	RADIOMETER 16 TOP SUN	0	+ 2	SUN	1	X------
EW6931K	RADIOMETER 1 SIDE SUN	0	+ 2	SUN	1	X------

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C DOWNLINK
SUBSYSTEM - ENVIRONMENTAL CHAMBER

MEAS ID	MEASUREMENT DESCRIPTION	DATA RANGE LOW	HIGH	UNIT	RR EA ST PE	MDPMMMC SN3LSSO CY4 SO
EW6932K	RADIOMETER 2 SIDE SUN	0 +	2	SUN	1	X------
EW6933K	RADIOMETER 3 SIDE SUN	0 +	2	SUN	1	X------
EW6934K	RADIOMETER 4 SIDE SUN	0 +	2	SUN	1	X------
EW6935K	RADIOMETER 5 SIDE SUN	0 +	2	SUN	1	X------
EW6936K	RADIOMETER 6 SIDE SUN	0 +	2	SUN	1	X------
EW6937K	RADIOMETER 7 SIDE SUN	0 +	2	SUN	1	X------
EW6938K	RADIOMETER 8 SIDE SUN	0 +	2	SUN	1	X------
EW6939K	RADIOMETER 9 SIDE SUN	0 +	2	SUN	1	X------
EW6940K	RADIOMETER 10 SIDE SUN	0 +	2	SUN	1	X------
EW6941K	RADIOMETER 11 SIDE SUN	0 +	2	SUN	1	X------
EW6942K	RADIOMETER 12 SIDE SUN	0 +	2	SUN	1	X------
EW6943K	RADIOMETER 13 SIDE SUN	0 +	2	SUN	1	X------
EW6944K	RADIOMETER 14 SIDE SUN	0 +	2	SUN	1	X------
EW6945K	RADIOMETER 15 SIDE SUN	0 +	2	SUN	1	X------
EW6946K	RADIOMETER 16 SIDE SUN	0 +	2	SUN	1	X------
EW6961X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6962X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6963X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6964X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6965X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6966X	RIMS Y-TRAVEL POSITION	NA	NA	NA	1	X------
EW6967X	RIMS REED SWITCH CLOSURE IND	NA	NA	NA	1	X------
EW6968X	RIMS DIRECTION OF TRAVEL	NA	NA	NA	1	X------
EW6971X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6972X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6973X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6974X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6975X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6976X	RIMS POSITION, ROW NUMBER	NA	NA	NA	1	X------
EW6977X	RIMS MODE OF OPERATION	NA	NA	NA	1	X------
EW6978X	RIMS MODE OF OPERATION	NA	NA	NA	1	X------
EW6979X	RIMS SIDE OR TOP SUN INDICATION	NA	NA	NA	1	X------
EW6987P	LOX DETANK PRESSURE	0 +	320	PSIG	1	X------
EW6988P	CHAMBER PRESSURE P1	0 +	15	PSIA	1	X------
EW6989P	CHAMBER PRESSURE P2	0 +	15	PSIA	1	X------
EW6991P	CHAMBER ION PRESSURE APPS-2421	0	10	TORR	1	X------
EW6992P	CHAMBER ION PRESSURE APPS-2422	0	10	TORR	1	X------
EW6993P	CHAMBER ALPHA PRESSURE APPS-1736	0	10	TORR	1	X------
EW6994P	MANLOCK 1 ALPHA PRESS APPS-928	0	10	TORR	1	X------
EW6995P	MANLOCK 2 ALPHA PRESS APPS-929	0	10	TORR	1	X------
EW6996P	MANLOCK 3 ALPHA PRESS APPS-992	0	10	TORR	1	X------

APPENDIX D
ACE-S/C STIMULUS MEASUREMENTS

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KC7000	FUEL CELL 1 HEATER PWR ON-OFF	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7001	FUEL CELL 2 HEATER PWR ON-OFF	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7002	FUEL CELL 3 HEATER PWR ON-OFF	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7003	FC 1 HEATER POWER CONTROL 1	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7004	FC 1 VOLT OVERIDE(HIGH-LOW HEAT)	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7005	FC 2 VOLT OVERIDE(HIGH-LOW HEAT)	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7006	FC 3 VOLT OVERIDE(HIGH-LOW HEAT)	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7007	FC 1 HEATER POWER CONTROL 2	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7008	FC 1 HEATER POWER CONTROL 3	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7009	FC 2 HEATER POWER CONTROL 1	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7010	FC 1 HEATER POWER CONTROL 4	OPEN,+	28	VDC	-	-	X	X	-	X	-	-	
KC7013	FC 2 HEATER POWER CONTROL 2	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7014	FC 2 HEATER POWER CONTROL 3	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7015	FC 3 HEATER POWER CONTROL 1	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7016	FC 2 HEATER POWER CONTROL 4	OPEN,+	28	VDC	-	-	X	X	-	X	-	-	
KC7019	FC 3 HEATER POWER CONTROL 2	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7020	FC 3 HEATER POWER CONTROL 3	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7021	FC 3 HEATER POWER CONTROL 4	OPEN,+	28	VDC	-	-	X	X	-	X	-	-	
KC7022	28V SC GND PWR SUP BUS A ON-OFF	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7022	28VDC SC GND PWR SUPPLY 1 ON-OFF	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7022	28V SC GND PWR SUP BUS A ON-OFF	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7022	28VDC SC GND PWR SUPPLY 1 ON-OFF	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7022	28V SC GND PWR SUP BUS A ON-OFF	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7022	28V SC GND PWR SUP BUS A ON-OFF	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7024	28VDC PS TO BUS A ON-OFF	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7024	28VDC PS 1 TO BUS A ON-OFF	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7024	28VDC PS TO BUS A ON-OFF	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7024	28VDC PS 1 TO BUS A ON-OFF	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7024	28VDC PS TO BUS A ON-OFF	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7024	28VDC PS TO BUS A ON-OFF	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7025	BUS A VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7025	PS 1 VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7025	BUS A VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7025	PS 1 VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7025	BUS A VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7025	BUS A VOLT ADJUST SW MATRIX 1	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7026	BUS A VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7026	PS 1 VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7026	BUS A VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7026	PS 1 VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7026	BUS A VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	SC104 & SUBS
KC7026	BUS A VOLT ADJUST SW MATRIX 2	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7027	BUS A VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7027	PS 1 VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7027	BUS A VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7027	PS 1 VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7027	BUS A VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7027	BUS A VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7028	BUS A VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7028	PS 1 VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KC7028	BUS A VOLT ADJUST SW MATRIX 4	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7028	PS 1 VOLT ADJUST SW MATRIX 4	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7028	BUS A VOLT ADJUST SW MATRIX 4	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7028	BUS A VOLT ADJUST SW MATRIX 4	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7029	BUS A VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7029	PS 1 VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7029	BUS A VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7029	PS 1 VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7029	BUS A VOLT ADJUST SW MATRIX 4	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7029	BUS A VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7030	BUS A VOLT ADJUST SW MATRIX 6	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7030	PS 1 VOLT ADJUST SW MATRIX 6	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7030	BUS A VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7030	PS 1 VOLT ADJUST SW MATRIX 6	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7030	BUS A VOLT ADJUST SW MATRIX 5	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7030	BUS A VOLT ADJUST SW MATRIX 6	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7031	BUS A VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7031	PS 1 VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7031	BUS A VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7031	PS 1 VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7031	BUS A VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7031	BUS A VOLT ADJUST SW MATRIX 7	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7032	28V SC GND PWR SUP BUS 3 ON-OFF	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7032	28VDC SC GND PWR SUPPLY 2 ON-OFF	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7032	28V SC GND PWR SUP BUS 3 ON-OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7032	28VDC SC GND PWR SUPPLY 2 ON-OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7032	28V SC GND PWR SUP BUS 3 ON-OFF	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7032	28V SC GND PWR SUP BUS 3 ON-OFF	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7034	28VDC PS TO BUS B ON-OFF	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7034	28VDC PS 2 TO BUS B ON-OFF	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7034	28VDC PS TO BUS B ON-OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7034	28VDC PS 2 TO BUS B ON-OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7034	28VDC PS TO BUS B ON-OFF	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7034	28VDC PS TO BUS B ON-OFF	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7035	BUS B VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7035	PS 2 VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7035	BUS B VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7035	PS 2 VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7035	BUS B VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7035	BUS B VOLT ADJUST SW MATRIX 1	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7036	BUS B VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7036	PS 2 VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7036	BUS B VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7036	PS 2 VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7036	BUS B VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7036	BUS B VOLT ADJUST SW MATRIX 2	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KC7037	BUS B VOLT ADJUST SW MATRIX 3	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7037	PS 2 VOLT ADJUST SW MATRIX 3	OPEN, +	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7037	BUS B VOLT ADJUST SW MATRIX 3	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7037	PS 2 VOLT ADJUST SW MATRIX 3	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KC7037	BUS B VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7037	BUS B VOLT ADJUST SW MATRIX 3	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7038	BUS B VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7038	PS 2 VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7038	BUS B VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7038	PS 2 VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7038	BUS B VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7038	BUS B VOLT ADJUST SW MATRIX 4	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7039	BUS B VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 & SUBS
KC7039	PS 2 VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103 & 104
KC7039	BUS B VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7039	PS 2 VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7039	BUS B VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7039	BUS B VOLT ADJUST SW MATRIX 5	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7040	BUS B VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 + SUBS
KC7040	PS 2 VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7040	BUS B VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7040	PS 2 VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7040	BUS B VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7040	BUS B VOLT ADJUST SW MATRIX 6	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7041	BUS B VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC106 + SUBS
KC7041	PS 2 VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC101,103, & 104
KC7041	BUS B VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7041	PS 2 VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7041	BUS B VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7041	BUS B VOLT ADJUST SW MATRIX 7	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7042	BUS B VOLT ADJUST SW MATRIX 8	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7042	PS 2 VOLT ADJUST SW MATRIX 8	OPEN,+	23	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7042	BUS B VOLT ADJUST SW MATRIX 8	OPEN,+	23	VDC	-	-	-	X	-	-	-	-	
KC7042	BUS B VOLT ADJUST SW MATRIX 8	OPEN,+	23	VDC	-	-	X	-	-	-	-	-	
KC7043	BUS A VOLT ADJUST SW MATRIX 8	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC104 & SUBS
KC7043	PS 1 VOLT ADJUST SW MATRIX 8	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	SC101 & 103
KC7043	BUS A VOLT ADJUST SW MATRIX 8	OPEN,+	28	VDC	-	-	-	X	-	-	-	-	
KC7043	BUS A VOLT ADJUST SW MATRIX 8	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7051	FC 1 N2 FILL VLV OPEN CLOSE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7052	FC 2 N2 FILL VLV OPEN CLOSE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7053	FC 3 N2 FILL VLV OPEN CLOSE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7057	PH A BUS 1 O/V,BUS 2 MAX LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7058	PH B BUS 1 O/V,BUS 2 MAX LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7059	PH C BUS 1 O/V,BUS 2 MAX LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7060	PH A BUS 1 MAX LMT V,BUS 2 O/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7061	PH B BUS 1 MAX LMT V,BUS 2 O/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7062	PH C BUS 1 MAX LMT V,BUS 2 O/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7063	PH A BUS 1 U/V,BUS 2 MIN LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7064	PH B BUS 1 U/V,BUS 2 MIN LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7065	PH C BUS 1 U/V,BUS 2 MIN LMT V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7066	PH A BUS 1 MIN LMT V,BUS 2 U/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7067	PH B BUS 1 MIN LMT V,BUS 2 U/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7068	PH C BUS 1 MIN LMT V,BUS 2 U/V	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	
KC7069	115 VAC 3 PH 400 CYCLE PWR ON	OPEN,+	28	VDC	-	-	-	-	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CJ	REMARKS
KC7070	115 VAC TO BUS 1 ON OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	
KC7071	115 VAC TO BUS 2 ON OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	
KC7072	SPACECRAFT PWR ON OFF	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	
KC7077	10 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7078	20 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7079	30 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7080	40 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7081	50 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7082	60 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7083	70 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7084	80 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7085	90 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7086	100 AMP BUS A LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7088	10 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7089	20 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7090	30 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7091	40 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7092	50 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7093	60 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7094	70 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7095	80 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7096	90 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7097	100 AMP BUS B LOAD ON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7179	FC 1 28V H2O2 IND PWR	OPEN, +	28	VDC	-	X	-	-	-	X	-	-	
KC7180	FC 2 28V H2O2 IND PWR	OPEN, +	28	VDC	-	X	-	-	-	X	-	-	
KC7181	FC 3 28V H2O2 IND PWR	OPEN, +	28	VDC	-	X	-	-	-	X	-	-	
KC7183	50 PERCENT PHASE A BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7184	50 PERCENT PHASE B BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7185	50 PERCENT PHASE C BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7186	100 PERCENT PHASE A BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7187	100 PERCENT PHASE B BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7188	100 PERCENT PHASE C BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7189	300 PERCENT PHASE A BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7190	300 PERCENT PHASE B BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7191	300 PERCENT PHASE C BUS 1 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7192	50 PERCENT PHASE A BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7193	50 PERCENT PHASE B BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7194	50 PERCENT PHASE C BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7195	100 PERCENT PHASE A BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7196	100 PERCENT PHASE B BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7197	100 PERCENT PHASE C BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7198	300 PERCENT PHASE A BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7199	300 PERCENT PHASE B BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7200	300 PERCENT PHASE C BUS 2 LOAD	OPEN, +	28	VDC	X	X	-	-	-	X	-	-	
KC7240	START GO2 CRYOGENICS DRAIN	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7241	START GO2 DRAIN INTERCONN LINES	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7242	START GHE PURGE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7243	START GHE PURGE POST CONDITION	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7244	START GO2 PURGE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7245	START GO2 PURGE POST CONDITION	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SEA	CO	REMARKS
KC7246	LN2 SUBCOOLER ON	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7247	LN2 SUBCOOLER OFF	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7248	START SUBCOOLER FILL	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7249	START PUMP COOLDOWN	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7250	F/C MODE STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7251	START CIRCULATE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7252	START TRANSFER	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7253	CIRCULATE AND XFER MODE STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7254	PUMP SPEED HIGH	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7255	PUMP SPEED LOW	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7256	EMERGENCY STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7270	START GH2 CRYOGENICS DRAIN	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7271	START DRAIN INTERCONN LINES	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7272	START GHE PURGE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7273	START GHE PURGE POST CONDITION	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7274	START GH2 PURGE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7275	START GH2 PURGE POST CONDITION	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7276	SUBCOOLER VACUUM ON	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7277	SUBCOOLER VACUUM OFF	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7278	START SUBCOOLER FILL	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7279	START PUMP COOLDOWN	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7280	F/C MODE STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7281	START CIRCULATE	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7282	START TRANSFER	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7283	CIRCULATE AND TRANSFER STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7284	PUMP SPEED HIGH	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7285	PUMP SPEED LOW	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7286	EMERGENCY STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7300	FC 1 BUS A DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7301	FC 1 BUS A DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7302	FC 1 BUS B DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7303	FC 1 BUS B DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7304	FC 2 BUS A DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7305	FC 2 BUS A DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7306	FC 2 BUS B DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7307	FC 2 BUS B DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7308	FC 3 BUS A DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7309	FC 3 BUS A DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7310	FC 3 BUS B DISCON ON	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7311	FC 3 BUS B DISCON OFF	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7312	FC 1 400 CYC PUMP PWR CONT OFF	OPEN, +	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7313	FC 2 400 CYC PUMP PWR CONT OFF	OPEN, +	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7314	FC 3 400 CYC PUMP PWR CONT OFF	OPEN, +	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7315	FC 1 H2 PURGE VALVE	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7316	FC 2 H2 PURGE VALVE	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	
KC7317	FC 3 H2 PURGE VALVE	OPEN, +	28	VDC	X	X	X	X	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSD	SFA	CD	REMARKS
KC7318	FC 1 O2 PURGE VALVE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7319	FC 2 O2 PURGE VALVE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7320	FC 3 O2 PURGE VALVE	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7333	O2 TANK 1 HEATER POWER ON-OFF	OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KC7334	O2 TANK 2 HEATER POWER ON-OFF	OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KC7336	LO2 FLOW ON	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7337	LO2 FLOW OFF	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7338	EMERGENCY STOP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7339	LH2 FLOW ON	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7340	LH2 FLOW OFF	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7341	EMERGENCY STOP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7342	FC 1 400 CYC PUMP PWR CONT ON	OPEN,+	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7343	FC 2 400 CYC PUMP PWR CONT ON	OPEN,+	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7344	FC 3 400 CYC PUMP PWR CONT ON	OPEN,+	28	VDC	X	X	X	-	-	X	-	-	2TV-1,101
KC7345	LV 22 OP GN2 ABORT SUPPLY O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7346	LV 23 OP DEPRESSURIZE BLEED O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7347	LV 22 OP GN2 ABORT SUPPLY H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7348	PS 3 DEPRESSURIZE START/STOP O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7357	CONTROL CMD LO2 FDS S14-032	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7358	EMERGENCY OVERRIDE LO2 S14-032	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7359	CONTROL COMMAND LH2 FDS S14-026	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7360	EMERGENCY OVERRIDE LH2 S14-026	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7364	SM BUS A COMMAND ON	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KC7365	SM BUS B COMMAND ON	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KC7453	EMERGENCY SHUTDOWN	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7454	RESET	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KC7455	H2 TANK 1 HEATER POWER ON-OFF	OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KC7456	H2 TANK 2 HEATER POWER ON-OFF	OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KC7463	FC NO.1 GAS REGULATOR	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7464	FC NO.2 GAS REGULATOR	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7465	FC NO.3 GAS REGULATOR	OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KC7466	START GN2 F/C PURGE	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7467	START S/C CRIT STOR SYS C/O	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7468	ACTUATE LOW PRESS BLEED	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7469	LIQUID DUMP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7470	FUEL CELL GH2 START	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7471	INSERT GN2 DRAIN LH2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7472	CRYOGENIC MODE STOP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7473	START GN2 F/C PURGE PORT M	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7474	START S/C CRIT STOR SYS C/O	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7475	ACTIVATE LOW PRESS BLEED	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7476	LIQUID DUMP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7477	START GN2 F/C PURGE PORT [illegible]	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7478	START GO2 F/C PURGE	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7479	INSERT GN2 DRAIN LO2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7485	CRYOGENIC MODE STOP	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7496	S/C EMERGENCY CGSS DETANKING H2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7497	S/C EMERGENCY CGSS DETANKING O2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7560	LV1 OP H2 VAC PUMP ON H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7561	LV2 OP FC PURGE VENT VAC H2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION		ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	ONY	P34	ML	MSS	MSO	SF4	CO	REMARKS
KC7562	LV4 OP TANK RELIEF VAC	H2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	
KC7563	PV11 CL/LV13 OP TANK VENT VAC	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7564	LV12 OP GH2 VENT TO ATMOS	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7565	PV10 CL FILL TANK	H2	OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7567	LV17 OP GH2/GN2 115 PSIA	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7568	LV18 OP GH2/GN2 240 PSIA	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7569	LV5 OP FILL LH2 TANK 1	H2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7570	LV6 OP GH2 TANK 1 VENT	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7571	LV7 OP FILL LH2 TANK 2	H2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7572	LV8 OP LH2 TANK 2 VENT	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7573	LV9 OP FC GH2 PURGE	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7574	LV14 OP FC GH2 REGULATED	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7575	LV15 OP/LV16 CL FC H2 SUPPLY	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7576	TRANSDUCER POWER NO 1	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7577	VALVE POSITION POWER NO 1	H2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7578	S/C TANK VENT		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7579	S/C TANK VENT		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7580	LV1 OP O2 VAC PUMP ON	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7581	LV2 OP FC PURGE VENT VAC	O2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	
KC7583	LV4 OP TANK RELIEF VAC	O2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	
KC7584	PV11 CL/LV13 OP TANK VENT VAC	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7585	LV12 OPEN GO2 VENT TO ATMOS	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7586	PV10 CL FILL TANKS	O2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KC7588	LV21 OP GN2 VENT TO ATMOS	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7589	LV17 OP GO2/GN2 115 PSIA	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7590	LV18 OP GO2/GN2 900 PSIA	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7591	LV19 OP GN2 1500 PSIA	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7592	LV20 OP GN2 115 PSIA	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7593	LV5 OP FILL LO2 TANK 1	O2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	
KC7594	LV6 OP LO2 TANK 1 VENT	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7595	LV7 OP FILL LO2 TANK 2	O2	OPEN,+	28	VDC	-	-	X	-	X	X	-	-	
KC7596	LV8 OP LO2 TANK 2 VENT	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7597	LV9 OP FC GO2 PURGE	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7598	LV14 OP FC GO2 REGULATED	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7599	LV15 OP/LV16 CL FC O2 SUPPLY	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7600	TRANSDUCER VOLTAGE	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7601	VALVE POS IND POWER NO 3	O2	OPEN,+	28	VDC	-	X	X	-	X	X	-	-	
KC7602	F/C H2 IN LINE HEATER ON		OPEN,+	28	VDC	X	X	X	-	-	X	-	-	SC2TV-1,101
KC7603	F/C H2 IN LINE HEATER OFF		OPEN,+	28	VDC	X	X	X	-	-	X	-	-	SC2TV-1,101
KC7620	PS 1 TO PS 5 COMMIT LOCKOUT		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7621	PS 2 AC START		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7622	PS 2 AC STOP		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7623	PS 2 DC ON		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7624	PS 2 DC OFF		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7625	PS 2 BATTERY ENABLE		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7626	PS 2 BATTERY RESET		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7627	LUT ACE POWER ON		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7628	PS 3 DC ON		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7629	PS 3 DC OFF		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KC7630	PS 3 BATTERY ENABLE		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION		ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KC7631	PS 3 BATTERY RESET		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7632	PS 4 DC ON		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7633	PS 4 DC OFF		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7634	PS 4 BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7635	PS 4 BATTERY RESET		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7636	GROUND PS TO SC BUS MOTOR SW		OPEN,	+ 28	VDC	-	X	X	X	-	X	-	-	
KC7637	PS 5 AC START		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7638	PS 5 AC STOP		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7639	PS 5 DC ON		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7640	PS 5 DC OFF		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7641	PS 5 BATTERY RESET		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7642	PS 5 BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7643	DC POWER PLATFORM 8		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7644	DC POWER PLATFORM 6 FUEL		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7645	DC POWER PLATFORM 6 OXID		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7646	DC POWER UB 6 CSM		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7647	DC POWER AGCS		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7648	DC POWER PAD FUEL AREA		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7649	DC POWER PAD OXID AREA		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7650	DC POWER ECS AREA		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7652	400 CPS BACKUP ENABLE RESET		OPEN,	+ 28	VDC	-	-	X	-	-	-	-	-	
KC7655	BUS A ISOL CONTACTOR		OPEN,	+ 28	VDC	X	-	X	X	-	X	-	-	
KC7656	BUS B ISOL CONTACTOR		OPEN,	+ 28	VDC	X	-	X	X	-	X	-	-	
KC7670	PS4 OP GN2 AUTO SYSTEM SAFE	O2	OPEN,	+ 28	VDC	-	X	-	-	-	-	-	-	
KC7671	PS4 OP GN2 AUTO SYSTEM SAFE	H2	OPEN,	+ 28	VDC	-	X	-	-	-	-	-	-	
KC7672	LV 25 OP TANK VAC RELIEF	H2	OPEN,	+ 28	VDC	-	X	-	-	-	X	-	-	
KC7673	LV 25 OP TANK VAC RELIEF	O2	OPEN,	+ 28	VDC	-	X	-	-	-	X	-	-	
KC7674	LV 26 OP GN2 FACILITY SUPPLY	O2	OPEN,	+ 28	VDC	-	X	-	-	-	X	-	-	
KC7677	LV 28 LH2 SUBCOOLER ON	H2	OPEN,	+ 28	VDC	-	-	X	-	X	-	-	-	
KC7678	LV 29 LH2 MODULATED OUTPUT	H2	OPEN,	+ 28	VDC	-	-	X	-	X	-	-	-	
KC7679	LV 30 LH2 SUBCOOLER FULL	H2	OPEN,	+ 28	VDC	-	-	X	-	X	-	-	-	
KC7682	PS 2 BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7683	PS 2 BATTERY RESET		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7685	REDUN PS-PS 2 ENABLE (XFER)		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7686	GSE PS 8 INPUT COMMAND		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7687	GSE PS 8 OUTPUT COMMAND		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7688	PS 8 BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7689	PS 8 BATTERY RESET		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7690	PS 8 FEEDER BUS B ON		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7691	PS 8 FEEDER BUS C ON		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7692	REDUND PS-PS 8 ENABLE(XFER)		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7693	400 HZ PRIMARY UNIT ON		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7694	400 HZ BACKUP UNIT ON		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7695	CSM PS3(BUS A) BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7696	CSM PS3(BUS A) BATTERY RESET		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7697	REDUN PS-PS3 ENABLE(XFER)		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7698	PS 3 (CSM BUS A) OUTPUT COMMAND		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	
KC7699	CSM PS 4 (BUS B) BATTERY ENABLE		OPEN,	+ 28	VDC	-	-	-	X	-	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - ELECTRICAL POWER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KC7700	CSM PS 4 (BUS B) BATTERY RESET	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7701	REDUND PS-PS 4 ENABLE(TRANSFER)	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7702	PS 4 (CSM BUS B) OUTPUT COMMAND	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7703	ML PS (2,3,4 AND B) COMMIT LOCKOUT	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7706	PS 1 BATTERY ENABLE	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7707	PS 1 BATTERY RESET	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7709	GSE PS 5 INPUT COMMAND	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7710	GSE PS 5 OUTPUT COMMAND	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7711	PS 5 BATTERY ENABLE	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7712	PS 5 BATTERY RESET	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7713	PS 5 FEEDER BUS B ON COMMAND	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7714	PS 5 FEEDER BUS C ON COMMAND	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7715	MSS PS (1,5) COMMIT LOCKOUT	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KC7725	LV 33 CYCLIC PURGE CONTROL H2	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7726	LV 34 OP LH2 TO FAC DISPOSAL H2	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7737	ACE PS2 REMOTE SENSING ENABLE	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7738	CSM PS3 REMOTE SENSING ENABLE	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7739	CSM PS4 REMOTE SENSING ENABLE	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	
KC7747	H2 PURGE LINE HEATER ON	OPEN, +	28	VDC	X	-	-	-	-	-	-	-	
KC7768	BUS A FILTER ON/OFF	OPEN, +	28	VDC	-	-	X	X	-	X	-	-	
KC7769	BUS B FILTER ON/OFF	OPEN, +	28	VDC	-	-	X	X	-	X	-	-	
KC7775	LV36 SC H2 TANKS TO FAC VENT	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KC7776	LV36 SC O2 TANKS TO FAC VENT	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM - SEQUENTIAL EVENTS CONTROLLER

ACE-S/C UPLINK

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KD7001	INITIATORS STIMULI UNIT POWER ON	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KD7002	PISU POWER RESET	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KD7021	MESC INDICATE POWER COMMAND	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KD7023	LIFT OFF INDICATION COMMAND	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - EARTH LANDING SEQUENCE CONTROLLER

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSD	SFA	CD	REMARKS
KE7000	SIMULATED CLIMB TEST MODE	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KE7001	SIMULATED HOLD TEST MODE	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KE7002	SIMULATED DESCEND TEST MODE 1	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KE7003	SIMULATED FAST DESCEND TEST MODE	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KE7004	SIMULATED DESCEND TEST MODE 2	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KE7008	A TO D CONV.HOLD AND COMMAND	OPEN,+	8	VDC	-	X	X	X	-	X	-	-	
KE7010	MAIN POWER OFF 115V RELAY	OPEN,+	115	VAC	-	X	X	X	-	X	-	-	
KE7011	MAIN POWER ON 115V RELAY	OPEN,+	115	VAC	-	X	X	X	-	X	-	-	
KE7031	FWD HS CHUTE SW C18S1 BYPASS A	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KE7032	FWD HS CHUTE SW C18S2 BYPASS B	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KE7033	FWD HS CHUTE SW C18S3 BYPASS A	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KE7034	FWD HS CHUTE SW C18S4 BYPASS B	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

ACE-S/C UPLINK

SUBSYSTEM - ENVIRONMENTAL

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KF7005	ECS SELECT FLOWMETER	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7006	SERVICE SET ON-OFF CONTROL	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7008	PUMP SELECT COMMAND	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7009	TRIM CONTROL SET ON-OFF	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7010	ECS GLYCOL SOV CONTROL	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7011	ECS BYPASS CONTROL	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7012	ECS SWITCH OVER COMMAND	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7013	ECS SELECT AUX FLOWMETER	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7028	MICROMETEROID PUNCTURE VALVE OP	OPEN, +	28	VDC	X	-	-	-	-	-	-	-	
KF7029	MICROMETEROID PUNCTURE VALVE CL	OPEN, +	28	VDC	X	-	-	-	-	-	-	-	
KF7030	MICROMETEROID PUNC VLV OP ENABLE	OPEN, +	28	VDC	X	-	-	-	-	-	-		
KF7090	ECS GLYCOL SOV CONTROL STANDBY	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7092	SERVICE SET ON-OFF CONTROL	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7093	PUMP SELECT COMMAND	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7094	ECS SELECT FLOWMETER	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7095	TRIM CONTROL SET ON-OFF STANDBY	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7096	ECS SWITCHOVER COMMAND STANDBY	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7097	ECS BYPASS CONTROL STANDBY	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7098	ECS SELECT AUX FLOWMETER STANDBY	OPEN, +	28	VDC	-	-	X	X	-	-	-	-	
KF7111	HUMIDITY SENSOR ON/OFF CONTROL	OPEN, +	28	VDC	X	-	-	-	-	-	-	-	
KF7112	ECS RAD HTR OVERLOAD RELAY RESET	OPEN, +	28	VDC	X	X	X	-	X	X	-	-	
KF7113	ECS RAD HTR OVERLOAD RELAY OFF	OPEN, +	28	VDC	X	X	X	-	X	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - GUIDANCE AND NAVIGATION

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CQ	REMARKS
KG7001	G/N BUFFER LOGIC 1 DATA				X	X	X	X	-	X	-	-	
KG7002	G/N BUFFER LOGIC 0 DATA				X	X	X	X	-	X	-	-	
KG7009	PIPA REFERENCE COMMANDS	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7010	X PIPA OUTPUT COMMANDS	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7011	Y PIPA OUTPUT COMMANDS	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7012	Z PIPA OUTPUT COMMANDS	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7013	IGA STEP COMMAND	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7014	MGA STEP COMMAND	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7015	OGA STEP COMMAND	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7019	CMC MARGIN TEST ENABLE	OPEN,	ACE	GP	-	-	-	-	-	-	-	X	
KG7020	CMC 4V STIMULI DAC 7	- 28,+	28	VDC	-	-	-	-	-	-	-	X	
KG7021	CMC 14V STIMULI DAC 8	- 28,+	28	VDC	-	-	-	-	-	-	-	X	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - STABILIZATION AND CONTROL

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CQ	REMARKS
KH7001	DAC 1 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7002	DAC 2 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7003	DAC 3 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7004	DAC 4 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7005	DAC 5 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7006	DAC 6 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7007	DAC 7 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7008	DAC 8 FILTER INHIBIT	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7060	PITCH TVC SERVO TRANSFER	OPEN,-	30	VDC	-	-	-	-	-	-	-	X	
KH7061	YAW TVC SERVO TRANSFER	OPEN,-	30	VDC	-	-	-	-	-	-	-	X	
KH7062	PITCH AND YAW TVC SERVO TRAN RET	OPEN		RTN	-	-	-	-	-	-	-	X	
KH7122	TRICKLE CUR DRIVER C3/+X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7122	TRICKLE CUR DRIVER 1 AND 2 PITCH	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7124	TRICKLE CUR DRIVER A3/-X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7124	TRICKLE CUR DRIVER 3 AND 4 PITCH	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7126	TRICKLE CUR DRIVER D3/+X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7126	TRICKLE CUR DRIVER 5 AND 6 YAW	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7128	TRICKLE CUR DRIVER B3/-X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7128	TRICKLE CUR DRIVER 7 AND 8 YAW	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7130	TRICKLE CUR DRIVER B1/+Z	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7130	TRICKLE CUR DRIVER 9 OR 12 ROLL	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7132	TRICKLE CUR DRIVER D1/-Z	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7132	TRICKLE CUR DRIVER 10 OR 11 ROLL	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7134	TRICKLE CUR DRIVER A1/+Y	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7134	TRICKLE CUR DRIVER 13 OR 16 ROLL	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7136	TRICKLE CUR DRIVER C1/-Y	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7136	TRICKLE CUR DRIVER 14 OR 15 ROLL	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC101
KH7204	GDC STEPPER MOTOR INHIBIT, + YAW	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7205	GDC STEPPER MOTOR INHIBIT, - YAW	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7206	GDC STEPPER MOTOR INHIBIT,+PITCH	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7207	GDC STEPPER MOTOR INHIBIT,-PITCH	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7208	GDC STEPPER MOTOR INHIBIT, +ROLL	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7209	GDC STEPPER MOTOR INHIBIT, -ROLL	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7211	TRICKLE CUR DRIVER A2/-Y (A)	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7212	TRICKLE CUR DRIVER A2/-Y (B)	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7213	TRICKLE CUR DRIVER B2/-Z	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7214	TRICKLE CUR DRIVER D4/-X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7215	TRICKLE CUR DRIVER A4/+X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7216	TRICKLE CUR DRIVER C2/+Y	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7217	TRICKLE CUR DRIVER D2/+Z	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7218	TRICKLE CUR DRIVER B4/+X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7219	TRICKLE CUR DRIVER C4/-X	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	SC103 & SUBS
KH7222	SPS THRUST ON AND 1 SEC DELAY	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7223	SPS THRUST ON AND 1.5 SEC DELAY	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7300	TVC INTEGRATORS DISABLE PITCH	OPEN,CLOSE			-	-	-	-	-	-	-	X	
KH7301	PITCH 1 TORQUER DAC 1	- 30,+	30	VDC	-	-	-	-	-	-	-	X	
KH7302	YAW 1 TORQUER DAC 2	- 30,+	30	VDC	-	-	-	-	-	-	-	X	
KH7303	ROLL 1 TORQUER DAC 3	- 30,+	30	VDC	-	-	-	-	-	-	-	X	
KH7304	TORQUER STIMULUS RELAY - ROLL 1	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KH7305	UNCAGE RELAY,ROLL 1	OPEN,CLOSE			-	-	-	-	-	-	-	X	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - STABILIZATION AND CONTROL

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KH7306	TORQUER STIMULUS RELAY YAW 1	OPEN,	+ 29	VDC	-	-	-	-	-	-	-	X	
KH7307	UNCAGE RELAY YAW 1	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7308	UNCAGE RELAY PITCH 1	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7309	TORQUER STIMULUS RELAY PITCH 1	OPEN,	+ 28	VDC	-	-	-	-	-	-	-	X	
KH7310	PITCH 2 TORQUER DAC 4	- 30,	+ 30	VDC	-	-	-	-	-	-	-	X	
KH7311	YAW 2 TORQUER DAC 5	- 30,	+ 30	VDC	-	-	-	-	-	-	-	X	
KH7312	ROLL 2 TORQUER DAC 6	- 30,	+ 30	VDC	-	-	-	-	-	-	-	X	
KH7313	UNCAGE RELAY ROLL	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7314	TORQUER STIMULUS RELAY ROLL 2	OPEN,	+ 28	VDC	-	-	-	-	-	-	-	X	
KH7315	UNCAGE RELAY, YAW	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7316	TORQUER STIMULUS RELAY YAW 2	OPEN,	+ 28	VDC	-	-	-	-	-	-	-	X	
KH7317	UNCAGE RELAY PITCH	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7318	TORQUER STIMULUS RELAY PITCH 2	OPEN,	+ 28	VDC	-	-	-	-	-	-	-	X	
KH7319	TVC INTEGRATORS DISABLE YAW	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7320	PITCH 1 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7321	YAW 1 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7322	ROLL 1 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7323	PITCH 2 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7324	YAW 2 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	
KH7325	ROLL 2 TORQUER DAC RETURN	OPEN,	CLOSE		-	-	-	-	-	-	-	X	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - SERVICE PROPULSION

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CD	REMARKS
KP7100	FUEL DILUTION START	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7101	FUEL DILUTION STOP	OPEN, +	23	VDC	-	-	X	-	X	-	-	-	
KP7104	OXIDIZER DILUTION START	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7105	OXIDIZER DILUTION STOP	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7107	PILOT VALVE 1+2 OPEN COMMAND	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7108	PILOT VALVE 3+4 OPEN COMMAND	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7109	DAC 1 FILTER INHIBIT	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7110	DAC 2 FILTER INHIBIT	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7111	PITCH GIMBAL COMMAND 1 TO 20 CPS	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7112	YAW GIMBAL COMMAND 1 TO 20 CPS	DAC -30	+30		-	-	-	-	-	-	X	-	
KP7113	GIMBAL MOTOR START PRIM PITCH	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7116	GIMBAL MOTOR START SEC PITCH	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7119	GIMBAL MOTOR START PRIM YAW	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7122	GIMBAL MOTOR START SEC YAW	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7128	GIMBAL CHANNEL SELECT SEC YAW	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7129	GIMBAL CHANNEL SELECT SEC PITCH	OPEN, +	28	VDC	-	-	-	-	-	-	X	-	
KP7145	PU VALVE POS ALIGN BIT 1 LSB	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7145	PU VALVE POS ALIGN BIT 1 MSB	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7146	PU VALVE POS ALIGN BIT 2	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7147	PU VALVE POS ALIGN BIT 3	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7148	PU VALVE POS ALIGN BIT 4	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7149	PU VALVE POS ALIGN BIT 5	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7150	PU VALVE POS ALIGN BIT 6	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7151	PU VALVE POS ALIGN BIT 7	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7152	PU VALVE POS ALIGN BIT 8 MSB	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7152	PU VALVE POS ALIGN BIT 8 LSB	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7153	SELECT POINT SENSOR MANUAL RESET	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7154	ALIGN PU VALVE PRI/SEC GATE	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7160	FCSM NO-GO FREQUENCY ON	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7161	FCSM NORM FREQUENCY ON	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7162	FCSM SYSTEM 1 INPUT	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7163	FCSM SYSTEM 2 INPUT	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7164	FCSM SYSTEM 3 INPUT	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7165	FCSM LOW LEVEL ON	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7166	FCSM TEST FREQUENCIES ON	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7203	FUEL TANK 1 SIM, PRIM	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7203	FUEL TANK 1 5 PCT SIM, PRI	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7208	FUEL TANK 1 SIM DEPLETION, PRI	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7209	FUEL TANK 2 SIM, PRIM	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7209	FUEL TANK 2 5 PCT SIM, PRI	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7214	FUEL TANK 2 SIM DEPLETION, PRI	OPEN, +	28	VDC	-	X	X	X	-	X	-	-	
KP7215	OXID TANK 1 SIM, PRIM	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7215	OX TANK 1 5 PCT SIM, PRI	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7221	OXID TANK 2 SIM, PRIM	OPEN, +	28	VDC	-	X	-	X	-	X	-	-	SC103 & SUBS
KP7221	OX TANK 2 5 PCT SIM, PRI	OPEN, +	28	VDC	-	-	X	-	-	-	-	-	
KP7270	SELECT SPS SYSTEM	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7271	START SPS SYSTEM	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7272	STOP SPS	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KP7274	START SPS PRESSURE TOP OFF	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - SERVICE PROPULSION

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KP7275	STOP SPS PRESSURE TOP-OFF	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7349	PV101 LOAD SM SPS FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7350	PV101 LOAD SM SPS OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7351	PV102 OPEN SM SPS OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7352	PV102 OPEN SM SPS FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7353	LV9 OPEN SM SPS HE LOAD S14-009	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7354	LV8 OPEN SPS HE VENT S14-009	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7355	TRANSDUCER POWER OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7356	VALVE POSITION POWER OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7357	TRANSDUCER POWER FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7358	VALVE POSITION POWER FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7359	TRANSDUCER PWR HELIUM AND GN2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7360	VALVE POS PWR HELIUM AND GN2	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7361	CONTROL COMMAND SM SPS OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7362	EMERGENCY OVERRIDE SPS OXIDIZER	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7363	CONTROL COMMAND SM SPS FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7364	EMERGENCY OVERRIDE SPS FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7380	HE MAIN VALVE NO 1 OPEN COMMAND	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KP7381	HE MAIN VALVE NO 2 OPEN COMMAND	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KP7384	ENABLE PROP VALVE COMMAND SYS 1	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KP7385	ENABLE PROP VALVE COMMAND SYS 2	OPEN,+	28	VDC	-	-	-	-	-	-	X	-	
KP7396	AUX FUEL HOLD	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7405	AUX FUEL SLEW INCREASE	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7406	AUX OXID SLEW INCREASE	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7407	AUX OXID HOLD	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7408	PRI OXID DEPLETION SIM	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7411	SC PUGS AC/DC POWER ON	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7412	SELECT POINT SENSOR AUTO RESET	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KP7422	EMERGENCY STOP ARM	OPEN,+	28	VDC	-	-	-	-	X	-	-	-	
KP7425	LV108 ULLAGE VENT VALVE SPS OXID	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7426	LV108 ULLAGE VENT VALVE SPS FUEL	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KP7440	SPS HE ISOLATION VALVE 1	OPEN,+	28	VDC	-	X	X	X	-	-	-	-	
KP7441	SPS HE ISOLATION VALVE 2	OPEN,+	28	VDC	-	X	X	X	-	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - REACTION CONTROL

STIM ID	STIMULUS DESCRIPTION		ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KR9111	42 SEC TO RESET SYS A		OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KR9112	42 SEC TO RESET SYS B		OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KR9290	SELECT RCS SYSTEM		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9291	START RCS SYSTEM		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9292	STOP RCS		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9294	START RCS PRESSURE TOP-OFF		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9295	STOP RCS PRESSURE TOP-OFF		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9303	RESET 5 SEC TO 2/3 SYS A		OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KR9304	RESET 5 SEC TO 2/3 SYS B		OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KR9308	RCS HE ISOL VALVE A ON		OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KR9309	RCS HE ISOL VALVE B ON		OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KR9310	RCS HE ISOL VALVE C ON		OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KR9311	RCS HE ISOL VALVE D ON		OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KR9312	RCS HE ISOL VALVES OFF		OPEN,+	28	VDC	-	-	X	X	-	-	-	-	
KR9351	LV7 OPEN RCS HE VENT	S14-009	OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9352	LV1 OPEN SM RCS A		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9353	LV2 OPEN SM RCS B		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9375	LV3 OPEN SM RCS C		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9376	LV4 OPEN SM RCS D		OPEN,+	28	VDC	-	-	X	-	X	-	-	-	
KR9377	LV5 OPEN CM RCS A		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KR9377	LV5 OPEN CM RCS NO 1		OPEN,+	28	VDC	-	-	-	-	X	-	-	-	
KR9378	LV6 OPEN CM RCS B		OPEN,+	28	VDC	-	-	X	-	-	-	-	-	
KR9378	LV6 OPEN CM RCS NO 2		OPEN,+	28	VDC	-	-	-	-	X	-	-	-	
KR9422	SM JETTISON CONTROLLER A		OPEN,+	28	VDC	X	X	X	X	-	X	-	-	
KR9423	SM JETTISON CONTROLLER B		OPEN,+	28	VDC	X	X	X	X	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK

SUBSYSTEM - L/V EMERGENCY DETECTION

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSD	SFA	CJ	REMARKS
KS7002	EDS AUTO ABORT 1 COMMAND	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7003	EDS AUTO ABORT 2 COMMAND	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7004	EDS AUTO ABORT 3 COMMAND	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7045	LV EDS +6D91 POWER	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7046	LV EDS +6D92 POWER	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7047	LV EDS +6D93 POWER	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7071	SIB ENG 1 OR SIVB ENG OUT A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7072	ENG 2 OUT A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7073	ENG 3 OUT A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7074	ENG 4 OUT A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7075	ENG 5 OUT A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7076	ENG 6 OUT OR SEC PLANE SEP A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7077	ENG 7 OUT A/B	OPEN,+	28	VDC	-	X	X	-	-	X	-	-	SC101
KS7078	ENG 8 OUT A/B	OPEN,+	28	VDC	-	X	X	-	-	X	-	-	SC101
KS7079	ABORT REQUEST A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7080	LV ATTITUDE REFERENCE FAIL A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KS7081	LV RATE EXCESSIVE A/B	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - COMMUNICATIONS AND INSTRUMENTATION

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	MLL	MSS	MSO	SFA	CDO	REMARKS
KT7039	FLIGHT QUAL CALIBRATE ENABLE	OPEN,+	28	VDC	-	X	-	X	-	X	-	-	S/C103 ONLY
KT7043	PCM TELEMETRY SET PROG CONT A	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7044	PCM TELEMETRY SET PROG CONT B	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7045	PCM TELEMETRY SET FR ID CONT A	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7046	PCM TELEMETRY SET FR ID CONT B	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7047	PCM TELEMETRY SET CODER A	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7048	PCM TELEMETRY SET CODER B	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7049	PCM TELEMETRY SET OUT REG A	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7050	PCM TELEMETRY SET OUT REG B	OPEN,COMMON			-	-	-	-	-	-	-	X	
KT7053	FLIGHT QUAL CALIBRATE REFERENCE	GND ,+	28	VDC	-	X	-	X	-	X	-	-	S/C103 ONLY
KT7054	FLIGHT QUAL CALIBRATE CONTROL	OPEN,+23 OR	GND		-	X	-	X	-	X	-	-	S/C103 ONLY

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK

SUBSYSTEM - GROUND SUPPORT EQUIPMENT

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KV7017	FLITE QUAL CROSSBAR SW ADVANCE	OPEN,+	48	VDC	-	-	X	-	-	-	-	-	
KV7018	RESET PULSE DETECTOR LOGIC	OPEN,+	28	VDC	-	X	-	-	-	-	-	-	SC107 + SUBS
KV7018	RESET PULSE DETECTOR LOGIC	OPEN,+	28	VDC	-	-	-	X	-	X	-	-	SC103 & SUBS
KV7020	G/N SW MATRIX CONT D	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7021	G/N SW MATRIX CONT C	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7022	G/N SW MATRIX CONT B	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7023	G/N SW MATRIX CONT A	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7024	G/N SW MATRIX CONT H	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7025	G/N SW MATRIX CONT G	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7026	G/N SW MATRIX CONT F	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7027	G/N SW MATRIX CONT E	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7028	G/N SW MATRIX CONT J	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7029	G/N SW MATRIX CONT I	OPEN,+	6	VDC	-	-	-	-	-	-	-	X	
KV7044	AGC LIFTOFF SIGNAL	OPEN,+	29	VDC	-	X	X	X	-	X	-	-	
KV7046	SIVB ULLAGE THRUST PRESENT	OPEN,+	28	VDC	-	X	X	X	-	X	-	-	
KV7051	DAC 1	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7052	DAC 2	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7053	DAC 3	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7054	DAC 4	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7055	DAC 5	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7056	DAC 6	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7057	DAC 7	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7058	DAC 8	OPEN,+	28	VDC	-	-	-	-	-	-	-	X	
KV7111	INSERT RZ 1 TIMING	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7112	INSERT RZ 2 TIMING	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7113	ENABLE EXT TIMING MODE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7114	ENABLE INTERNAL TIMING MODE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7115	CTE TIMING OPEN	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7116	INSERT RZ 1 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7117	INSERT RZ 2 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7118	INSERT NRZ 1 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7119	INSERT NRZ 5 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7120	INSERT NRZ 2 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7121	INSERT NRZ 3 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7122	INSERT NRZ 4 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7123	INSERT NRZ 6 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7124	INSERT NRZ 7 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7125	INSERT NRZ 8 DATA	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7126	ENABLE RZ1 51.2KBS DATA RATE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7127	ENABLE RZ1 1.6KBS DATA RATE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7129	ENABLE RZ2 51.2KBS DATA RATE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7129	ENABLE RZ2 1.6KBS DATA RATE	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7130	INSERT CTE TIMING	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7131	RZ1 DATA OPEN	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7132	RZ2 DATA OPEN	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	
KV7133	NRZ1 DATA OPEN	OPEN,+	12	VDC	X	X	X	X	-	X	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM — ACE-S/C UPLINK
SUBSYSTEM - GROUND SUPPORT EQUIPMENT

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	ONY	P34	ML	MSS	MSO	SFA	CO	REMARKS
KV7134	NRZ5 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7135	NRZ2 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7136	NRZ3 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7137	NRZ4 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7138	NRZ6 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7139	NRZ7 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7140	NRZ8 DATA OPEN	OPEN,	+ 12	VDC	X	X	X	X	-	X	-	-	
KV7148	DTCS SELF TEST CHAN 1A LINK 3	+6	, OPEN	VDC	-	X	-	-	-	-	-	-	
KV7149	DTCS SELF TEST CHAN 1B LINK 3	OPEN,	+ 6	VDC	-	X	-	-	-	-	-	-	
KV7150	DTCS SELF TEST CHAN 2A LINK 3	+6	, OPEN	VDC	-	X	-	-	-	-	-	-	
KV7151	DTCS SELF TEST CHAN 2B LINK 3	OPEN,	+ 6	VDC	-	X	-	-	-	-	-	-	
KV7152	DTCS SELF TEST CHAN 3A LINK 3	+6	, OPEN	VDC	-	X	-	-	-	-	-	-	
KV7153	DTCS SELF TEST CHAN 3B LINK 3	OPEN,	+ 6	VDC	-	X	-	-	-	-	-	-	
KV7154	DTCS SELF TEST CHAN 1A LINK 3	+6	, OPEN	VDC	-	-	-	-	-	X	-	-	
KV7155	DTCS SELF TEST CHAN 1B LINK 3	OPEN,	+ 6	VDC	-	-	-	-	-	X	-	-	
KV7156	DTCS SELF TEST CHAN 2A LINK 3	+6	, OPEN	VDC	-	-	-	-	-	X	-	-	
KV7157	DTCS SELF TEST CHAN 2B LINK 3	OPEN,	+ 6	VDC	-	-	-	-	-	X	-	-	
KV7158	DTCS SELF TEST CHAN 3A LINK 3	+6	, OPEN	VDC	-	-	-	-	-	X	-	-	
KV7159	DTCS SELF TEST CHAN 3B LINK 3	OPEN,	+ 6	VDC	-	-	-	-	-	X	-	-	
KV7160	DTCS SELF TEST CHAN 1A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7161	DTCS SELF TEST CHAN 1B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7162	DTCS SELF TEST CHAN 2A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7163	DTCS SELF TEST CHAN 2B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7164	DTCS SELF TEST CHAN 3A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7165	DTCS SELF TEST CHAN 3B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7166	DTCS SELF TEST CHAN 4A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7167	DTCS SELF TEST CHAN 4B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7168	DTCS SELF TEST CHAN 5A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7169	DTCS SELF TEST CHAN 5B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7170	DTCS SELF TEST CHAN 6A LINK 3	+6	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7171	DTCS SELF TEST CHAN 6B LINK 3	OPEN,	+ 6	VDC	-	-	X	-	-	-	-	-	
KV7172	DTCS SELF TEST CHAN 1A LINK 2	+23	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7173	DTCS SELF TEST CHAN 1B LINK 2	OPEN,	+ 23	VDC	-	-	X	-	-	-	-	-	
KV7174	DTCS SELF TEST CHAN 2A LINK 2	+23	, OPEN	VDC	-	-	X	-	-	-	-	-	
KV7175	DTCS SELF TEST CHAN 2B LINK 2	OPEN,	+ 23	VDC	-	-	X	-	-	-	-	-	
KV7176	DTCS SELF TEST CHAN 1A LINK 2	+6	, OPEN	VDC	-	-	-	X	-	-	-	-	
KV7177	DTCS SELF TEST CHAN 1B LINK 2	OPEN,	+ 6	VDC	-	-	-	X	-	-	-	-	
KV7178	DTCS SELF TEST CHAN 2A LINK 2	+6	, OPEN	VDC	-	-	-	X	-	-	-	-	
KV7179	DTCS SELF TEST CHAN 2B LINK 2	OPEN,	+ 6	VDC	-	-	-	X	-	-	-	-	
KV7180	DTCS SELF TEST CHAN 3A LINK 2	+6	, OPEN	VDC	-	-	-	X	-	-	-	-	
KV7181	DTCS SELF TEST CHAN 3B LINK 2	OPEN,	+ 6	VDC	-	-	-	X	-	-	-	-	
KV7182	DTCS SELF TEST CHAN 1A LINK 3	+23	, OPEN	VDC	-	-	-	-	X	-	-	-	
KV7183	DTCS SELF TEST CHAN 1B LINK 3	OPEN,	+ 23	VDC	-	-	-	-	X	-	-	-	
KV7184	DTCS SELF TEST CHAN 2A LINK 3	+23	, OPEN	VDC	-	-	-	-	X	-	-	-	
KV7185	DTCS SELF TEST CHAN 2B LINK 3	OPEN,	+ 23	VDC	-	-	-	-	X	-	-	-	
KV7186	DTCS SELF TEST CHAN 3A LINK 3	+23	, OPEN	VDC	-	-	-	-	X	-	-	-	
KV7187	DTCS SELF TEST CHAN 3B LINK 3	OPEN,	+ 23	VDC	-	-	-	-	X	-	-	-	
KV7188	DTCS SELF TEST CHAN 4A LINK 3	+23	, OPEN	VDC	-	-	-	-	X	-	-	-	
KV7189	DTCS SELF TEST CHAN 4B LINK 3	OPEN,	+ 23	VDC	-	-	-	-	X	-	-	-	
KV7190	DTCS SELF TEST CHAN 5A LINK 3	+23	, OPEN	VDC	-	-	-	-	X	-	-	-	

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM ACE-S/C UPLINK
SUBSYSTEM - GROUND SUPPORT EQUIPMENT

STIM ID	STIMULUS DESCRIPTION	ELECTRICAL SIGNAL RANGE LOW	HIGH	UNIT	MSC	DNY	P34	ML	MSS	MSD	SFA	CU	REMARKS
KV7191	DTCS SELF TEST CHAN 5B LINK 3	OPEN, +	28	VDC	-	-	-	-	X	-	-	-	
KV7192	DTCS SELF TEST CHAN 1A LINK 1	OPEN,	GRD		-	-	-	-	-	-	-	X	
KV7193	DTCS SELF TEST CHAN 1B LINK 1	GRD ,	OPEN		-	-	-	-	-	-	-	X	
KV7194	DTCS SELF TEST CHAN 2A LINK 1	OPEN,	GRD		-	-	-	-	-	-	-	X	
KV7203	DTCS SELF TEST P16				-	-	-	-	-	-	X	-	
KV7271	PITCH GIMBAL FREQUENCY + POWER	DAC	7		-	-	-	-	-	-	X	-	
KV7272	YAW GIMBAL FREQUENCY + POWER	DAC	2		-	-	-	-	-	-	X	-	
KV7295	EMERGENCY STOP RCS/SPS CONTROL	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KV7296	RESET RCS/SPS CONTROL	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KV7340	BUS MONITOR CAL COMMAND C14-207	OPEN, +	28	VDC	-	-	-	-	-	-	-	X	MSJ S/C 106 + SUBS
KV7341	BUS MONITOR CAL COMMAND C14-267	OPEN, +	28	VDC	-	-	-	X	-	-	-	-	S/C 104 + SUBS
KV7342	BUS MONITOR CAL COMMAND C14-241	OPEN, +	28	VDC	-	-	-	-	-	X	-	-	S/C 106 + SUBS
KV7351	CONT CMD SM SPS,CM/RCS,GN2	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	
KV7352	EMER OVERRIDE SM SPS,CM/RCS,GN2	OPEN, +	28	VDC	-	-	X	-	X	-	-	-	

APPENDIX F

NON-ACE-S/C CHECKOUT MEASUREMENTS

N-ACE

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
STRUCTURES

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
A A8198	X	NOSE CONE-SLA PHYS SEP MONITOR 1			TG		SEP		EVENT	4	120	S/S	X
A A8199	X	NOSE CONE-SLA PHYS SEP MONITOR 2			TG		SEP		EVENT	4	120	S/S	X
A A8200	X	SLA DEPLOYMENT PHYSICAL MON 1			TG			DEPLOY	EVENT	4	1	S/S	X
A A8201	X	SLA DEPLOYMENT PHYSICAL MON 2			TG			DEPLOY	EVENT	4	1	S/S	X
A A8202	X	SLA DEPLOYMENT PHYSICAL MON 3			TG			DEPLOY	EVENT	4	1	S/S	X
A A8203	X	SLA DEPLOYMENT PHYSICAL MON 4			TG			DEPLOY	EVENT	4	1	S/S	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

N-ACE

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U TV1346789012 B
S C0045	C O2 TANK 1 VAC-ION PUMP CURRENT			TG		+0	+5	MAMP	3			XXXXXXXXXX
S C0046	C O2 TANK 2 VAC-ION PUMP CURRENT			TG		+0	+5	MAMP	3			XXXXXXXXXX
S C0047	C H2 TANK 1 VAC-ION PUMP CURRENT			TG		+0	+5	MAMP	3			XXXXXXXXXX
S C0048	C H2 TANK 2 VAC-ION PUMP CURRENT			TG		+0	+5	MAMP	3			XXXXXXXXXX
C C0122	C AC CURRENT-INVERTER PHASE A			AG		+0	+5	AMP	3			XXXXXXXXX
C C0123	C AC CURRENT-INVERTER PHASE B			AG		+0	+5	AMP	3			XXXXXXXXX
C C0124	C AC CURRENT-INVERTER PHASE C			AG		+0	+5	AMP	3			XXXXXXXXX
C C0136	X FC BUS DISCONNECT C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0137	X MN BUS A UNDERVOLT C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0138	X MN BUS B UNDERVOLT C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0139	X AC BUS 1 C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0140	X AC BUS 2 C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0141	X AC BUS 1 OVERLOAD C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0142	X AC BUS 2 OVERLOAD C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0143	X CYRO PRESS C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0144	X INV 1 TEMP HI C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0145	X INV 2 TEMP HI C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0146	X INV 3 TEMP HI C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0147	X FC 1 C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0148	X FC 2 C/W GSE MON			AG			DET	EVENT	3			XXXX
C C0149	X FC 3 C/W GSE MON			AG			DET	EVENT	3			XXXX
S C0360	V FAN MOTOR TANK 1 O2			TG		0	+0.75	VPP	3	1	KC	XXXXXXXXXX
S C0361	V FAN MOTOR TANK 2 O2			TG		0	+0.75	VPP	3	1	KC	XXXXXXXXXX
S C0362	V FAN MOTOR TANK 1 H2			TG		0	+6	VPP	3	1	KC	XXXXXXXXXX
S C0363	V FAN MOTOR TANK 2 H2			TG		0	+6	VPP	3	1	KC	XXXXXXXXXX

N-ACE

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
MASTER EVENTS SEQUENCE CONTROLLER

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
A	D0600	X NOSE CONE JETTISON RELAY CLOSE A			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0601	X NOSE CONE JETTISON RELAY CLOSE B			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0602	X LM-SLA SEPARATION RELAY CLOSE A			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0603	X LM-SLA SEPARATION RELAY CLOSE B			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0610	X SLA PANELS DEPLOY RELAY CLOSE A			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0611	X SLA PANELS DEPLOY RELAY CLOSE B			TG		OPEN	CLOSE	EVENT	4	1	S/S	X
A	D0620	V PYRO BATT UNDERVOLTAGE IND A			TG		+0	+37	VDC	4			X
A	D0621	V PYRO BATT UNDERVOLTAGE IND B			TG		+0	+37	VDC	4			X
A	D0622	V LOGIC BATT UNDERVOLTAGE IND A			TG		+0	+37	VDC	4			X
A	D0623	V LOGIC BATT UNDERVOLTAGE IND B			TG		+0	+37	VDC	4			X
A	D0624	X LOGIC BUS SAFE A/B INDICATE			TG			SAFE	EVENT	4			X
A	D0625	X LOGIC BUS ARM A/B INDICATE			TG			ARM	EVENT	4			X
A	D0626	X PYRO BUS SAFE A/B INDICATE			TG			SAFE	EVENT	4			X
A	D0627	X PYRO BUS ARM A/B INDICATE			TG			ARM	EVENT	4			X
A	D0628	X JC PYRO FIRING RELAYS SAFE A			TG			SAFE	EVENT	4			X
A	D0629	X JC PYRO FIRING RELAYS SAFE B			TG			SAFE	EVENT	4			X
A	D0634	X NOSE CONE JETT SIGNAL MON SYS A			TG				EVENT	4			X
A	D0635	X NOSE CONE JETT SIGNAL MON SYS B			TG				EVENT	4			X
A	D0636	X SLA PANEL DEPLOY SIG MON SYS A			TG				EVENT	4			X
A	D0637	X SLA PANEL DEPLOY SIG MON SYS B			TG				EVENT	4			X
A	D0638	X LM-SLA SEP SIG MON SYS A			TG				EVENT	4			X
A	D0639	X LM-SLA SEP SIG MON SYS B			TG				EVENT	4			X
A	D0690	X LM/SLA LEG SEPARATION RELAY A			TG			SEP	EVENT	3	200	S/S	XXXXXXXX
A	D0691	X LM/SLA LEG SEPARATION RELAY B			TG			SEP	EVENT	3	200	S/S	XXXXXXXX
A	D0694	X LSSC TD1 SYS A 30 MILLISEC			TG			END	EVENT	3	200	S/S	X
/A	D0694	X LSSC TD1 SYS A 30 MILLISEC			TG			END	EVENT	3	200	S/S	XXXXXXXX
A	D0695	X LSSC TD1 SYS B 30 MILLISEC			TG			END	EVENT	3	200	S/S	X
/A	D0695	X LSSC TD1 SYS B 30 MILLISEC			TG			END	EVENT	3	200	S/S	XXXXXXXX
A	D0696	X LSSC TD2 SYS A 30 MILLISEC			TG			END	EVENT	3	200	S/S	X
/A	D0696	X LSSC TD2 SYS A 30 MILLISEC			TG			END	EVENT	3	200	S/S	XXXXXXXX
A	D0697	X LSSC TD2 SYS B 30 MILLISEC			TG			END	EVENT	3	200	S/S	X
/A	D0697	X LSSC TD2 SYS B 30 MILLISEC			TG			END	EVENT	3	200	S/S	XXXXXXXX

N-ACE

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
ENVIRONMENTAL CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	C A L	DATA RANGE LOW	HIGH	UNITS	C A T	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U TV1346789012 B
C F0074 X	CO2 PP HI C/W GSE MON			AG			DET	EVENT	3			X
C F0074 X	CO2 PP HI C/W GSE MON			AG			DET	EVENT	3			XXX
C F0075 X	SUIT COMPRESSOR C/W GSE MON			AG			DET	EVENT	3			X
C F0075 X	SUIT COMPRESSOR C/W GSE MON			AG			DET	EVENT	3			XXX
C F0076 X	GLYCOL TEMP LO C/W GSE MON			AG			DET	EVENT	3			X
C F0076 X	GLYCOL TEMP LO C/W GSE MON			AG			DET	EVENT	3			XXX
C F0077 X	O2 FLOW HI C/W GSE MON			AG			DET	EVENT	3			X
C F0077 X	O2 FLOW HI C/W GSE MON			AG			DET	EVENT	3			XXX

N-ACE

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
GUIDANCE AND NAVIGATION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
C G1331	V 3.2KC 28V SUPPLY			FM					2			XXXXXXXXXXX
C G2011	V X PIPA SG OUTPUT			FM					3			XXXXXXXXXXX
C G2031	V Y PIPA SG OUTPUT			FM					3			XXXXXXXXXXX
C G2051	V Z PIPA SG OUTPUT			FM					3			XXXXXXXXXXX
C G5043	X CMC C/W GSE MON			AG			DET	EVENT	3			X
C G5043	X CMC C/W GSE MON			AG			DET	EVENT	3			XXX
C G5044	X ISS C/W GSE MON			AG			DET	EVENT	3			X
C G5044	X ISS C/W GSE MON			AG			DET	EVENT	3			XXX

N-ACE

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
STABILIZATION AND CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 8
C H3568 X BMAG 1 TEMP C/W GSE MON				AG			DET	EVENT	3			X
C H3569 X BMAG 1 TEMP C/W GSE MON				AG			DET	EVENT	3			XXX
C H3569 X BMAG 2 TEMP C/W GSE MON				AG			DET	EVENT	3			X
C H3569 X BMAG 2 TEMP C/W GSE MON				AG			DET	EVENT	3			XXX

N-ACE

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
FLIGHT TECHNOLOGY

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
G K1069 X	C/W LAMP PWR ON GSE			AG			DET	EVENT	3			X
C K1071 X	C/W GSE MON			AG			DET	EVENT	3			X
C K1071 X	C/W GSE MON			AG			DET	EVENT	3			XXX

N-ACE

C S M MEASUREMENT REQUIREMENTS
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
S P0026	H POSITION FUEL/OX VLV 1 POT A			TG		+0	+90	DEG	1	50	CPS	XXXXXXXXXX
S P0027	H POSITION FUEL/OX VLV 2 POT A			TG		+0	+90	DEG	1	50	CPS	XXXXXXXXXX
S P0028	H POSITION FUEL/OX VLV 3 POT A			TG		+0	+90	DEG	1	50	CPS	XXXXXXXXXX
S P0029	H POSITION FUEL/OX VLV 4 POT A			TG		+0	+90	DEG	1	50	CPS	XXXXXXXXXX
S P0126	X SPS FLANGE TEMP HI C/W GSE MON			AG			DET	EVENT	3			X
S P0126	X SPS FLANGE TEMP HI C/W GSE MON			AG			DET	EVENT	3			XXX
S P0127	X PITCH GMBL 1 C/W GSE MON			AG			DET	EVENT	3			X
S P0127	X PITCH GMBL 1 C/W GSE MON			AG			DET	EVENT	3			XXX
S P0128	X YAW GMBL 1 C/W GSE MON			AG			DET	EVENT	3			X
S P0128	X YAW GMBL 1 C/W GSE MON			AG			DET	EVENT	3			XXX
S P0129	X PITCH GMBL 2 C/W GSE MON			AG			DET	EVENT	3			X
S P0129	X PITCH GMBL 2 C/W GSE MON			AG			DET	EVENT	3			XXX
S P0130	X YAW GMBL 2 C/W GSE MON			AG			DET	EVENT	3			X
S P0130	X YAW GMBL 2 C/W GSE MON			AG			DET	EVENT	3			XXX
S P0131	X SPS ROUGH ECO C/W GSE MON			AG			DET	EVENT	3			X
S P0131	X SPS ROUGH ECO C/W GSE MON			AG			DET	EVENT	3			XX
S P0132	X SPS PU SNSR C/W GSE MON			AG			DET	EVENT	3			XXX
S P0133	X SPS PRESS C/W GSE MON			AG			DET	EVENT	3			X
S P0133	X SPS PRESS C/W GSE MON			AG			DET	EVENT	3			XXX
S P0165	N SPS LINE HTR A CONTINUITY			TG		6.9	8.4	OHMS	3			X XXXXXXX
S P0166	N SPS LINE HTR B CONTINUITY			TG		6.9	8.4	OHMS	3			X XXXXXXX
S P0167	V SPS LINE HTR A POWER			TG		+23	+31	VDC	3			X XXXXXXX
S P0168	V SPS LINE HTR B POWER			TG		+23	+31	VDC	3			X XXXXXXX
S P0662	X SERVICE ENG SOL VLV 1,2 SIG MON			TG		OFF	ON	EVENT	3	1	S/S	XXXXXXXXXX
S P0664	X SERVICE ENG SOL VLV 3,4 SIG MON			TG		OFF	ON	EVENT	3	1	S/S	XXXXXXXXXX
S P1022	X SPS ROUGH COMBUSTION ENG CUTOFF			G			CUTOFF	EVENT	1	5M	SEC	X
S P1031	D SPS VIBRATION FCSM MONITOR 1			TG		-250	+250	G	3	2	KCP	XXXXXXXXXX
S P1032	D SPS VIBRATION FCSM MONITOR 2			TG		-250	+250	G	3	2	KCP	XXXXXXXXXX
S P1033	D SPS VIBRATION FCSM MONITOR 3			TG		-250	+250	G	3	2	KCP	XXXXXXXXXX

N-ACE

C S M MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	DATA RANGE UNITS	CAT	RESPONSE RATE	RESPONSE UNIT	S/C EFFECTIVITY 521111111111+S T0000000111 U 7V1346789012 B
C R0023 X	CM RCS 1 C/W GSE MON			AG			DET	EVENT	3			X
C R0023 X	CM RCS 1 C/W GSE MON			AG			DET	EVENT	3			XXX
C R0024 X	CM RCS 2 C/W GSE MON			AG			DET	EVENT	3			X
C R0024 X	CM RCS 2 C/W GSE MON			AG			DET	EVENT	3			XXX
C R1401 V	CM RJ DIR COIL MON SYS A+P			TG		-60	+60	VDC	3	4	KC	X
/C R1401 V	CM RJ DIR COIL MON 13			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1402 V	CM RJ DIR COIL MON SYS A-P			TG		-60	+60	VDC	3	4	KC	X
/C R1402 V	CM RJ DIR COIL MON 14			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1403 V	CM RJ DIR COIL MON SYS B+P			TG		-60	+60	VDC	3	4	KC	X
/C R1403 V	CM RJ DIR COIL MON 23			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1404 V	CM RJ DIR COIL MON SYS B-P			TG		-60	+60	VDC	3	4	KC	X
/C R1404 V	CM RJ DIR COIL MON 24			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1405 V	CM RJ DIR COIL MON SYS B+Y			TG		-60	+60	VDC	3	4	KC	X
/C R1405 V	CM RJ DIR COIL MON 25			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1406 V	CM RJ DIR COIL MON SYS B-Y			TG		-60	+60	VDC	3	4	KC	X
/C R1406 V	CM RJ DIR COIL MON 26			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1407 V	CM RJ DIR COIL MON SYS A+Y			TG		-60	+60	VDC	3	4	KC	X
/C R1407 V	CM RJ DIR COIL MON 15			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1408 V	CM RJ DIR COIL MON SYS A-Y			TG		-60	+60	VDC	3	4	KC	X
/C R1408 V	CM RJ DIR COIL MON 16			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1409 V	CM RJ DIR COIL MON SYS A+R			TG		-60	+60	VDC	3	4	KC	X
/C R1409 V	CM RJ DIR COIL MON 11			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1410 V	CM RJ DIR COIL MON SYS B-R			TG		-60	+60	VDC	3	4	KC	X
/C R1410 V	CM RJ DIR COIL MON 22			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1411 V	CM RJ DIR COIL MON SYS B+R			TG		-60	+60	VDC	3	4	KC	X
/C R1411 V	CM RJ DIR COIL MON 21			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1412 V	CM RJ DIR COIL MON SYS A-R			TG		-60	+60	VDC	3	4	KC	X
/C R1412 V	CM RJ DIR COIL MON 12			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1481 V	CM RJ AUTO COIL MON SYS A+P			TG		-60	+60	VDC	3	4	KC	X
/C R1481 V	CM RJ AUTO COIL MON 13			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1482 V	CM RJ AUTO COIL MON SYS A-P			TG		-60	+60	VDC	3	4	KC	X
/C R1482 V	CM RJ AUTO COIL MON 14			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1483 V	CM RJ AUTO COIL MON SYS B+P			TG		-60	+60	VDC	3	4	KC	X
/C R1483 V	CM RJ AUTO COIL MON 23			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

N-ACE

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C R1484	V CM RJ AUTO COIL MON SYS B-P			TG		-60	+60	VDC	3	4	KC	X
/C R1484	V CM RJ AUTO COIL MON 24			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1485	V CM RJ AUTO COIL MON SYS B+Y			TG		-60	+60	VDC	3	4	KC	X
/C R1485	V CM RJ AUTO COIL MON 25			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1486	V CM RJ AUTO COIL MON SYS B-Y			TG		-60	+60	VDC	3	4	KC	X
/C R1486	V CM RJ AUTO COIL MON 26			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1487	V CM RJ AUTO COIL MON SYS A+Y			TG		-60	+60	VDC	3	4	KC	X
/C R1487	V CM RJ AUTO COIL MON 15			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1488	V CM RJ AUTO COIL MON SYS A-Y			TG		-60	+60	VDC	3	4	KC	X
/C R1488	V CM RJ AUTO COIL MON 16			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1489	V CM RJ AUTO COIL MON SYS A+R			TG		-60	+60	VDC	3	4	KC	X
/C R1489	V CM RJ AUTO COIL MON 11			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1490	V CM RJ AUTO COIL MON SYS B-R			TG		-60	+60	VDC	3	4	KC	X
/C R1490	V CM RJ AUTO COIL MON 22			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1491	V CM RJ AUTO COIL MON SYS B+R			TG		-60	+60	VDC	3	4	KC	X
/C R1491	V CM RJ AUTO COIL MON 21			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
C R1492	V CM RJ AUTO COIL MON SYS A-R			TG		-60	+60	VDC	3	4	KC	X
/C R1492	V CM RJ AUTO COIL MON 12			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R5041	X SM RCS A C/W GSE MON			AG			DET	EVENT	3			X
S R5041	X SM RCS A C/W GSE MON			AG			DET	EVENT	3			XXX
S R5042	X SM RCS B C/W GSE MON			AG			DET	EVENT	3			X
S R5042	X SM RCS B C/W GSE MON			AG			DET	EVENT	3			XXX
S R5043	X SM RCS C C/W GSE MON			AG			DET	EVENT	3			X
S R5043	X SM RCS C C/W GSE MON			AG			DET	EVENT	3			XXX
S R5044	X SM RCS D C/W GSE MON			AG			DET	EVENT	3			X
S R5044	X SM RCS D C/W GSE MON			AG			DET	EVENT	3			XXX
S R6401	V SM RJ DIR COIL MON QUAD C+P			TG		-60	+60	VDC	3	4	KC	X
/S R6401	V SM RJ DIR COIL MON C3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6402	V SM RJ DIR COIL MON QUAD A-P			TG		-60	+60	VDC	3	4	KC	X
/S R6402	V SM RJ DIR COIL MON A4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6403	V SM RJ DIR COIL MON QUAD A+P			TG		-60	+60	VDC	3	4	KC	X
/S R6403	V SM RJ DIR COIL MON A3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6404	V SM RJ DIR COIL MON QUAD C-P			TG		-60	+60	VDC	3	4	KC	X
/S R6404	V SM RJ DIR COIL MON C4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX

N-ACE

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S2111111111+S T0000000111 U 7V1346789012 B
S R6405	V SM RJ DIR COIL MON QUAD D+Y			TG		-60	+60	VDC	3	4	KC	X
/S R6405	V SM RJ DIR COIL MON D3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6406	V SM RJ DIR COIL MON QUAD B-Y			TG		-60	+60	VDC	3	4	KC	X
/S R6406	V SM RJ DIR COIL MON B4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6407	V SM RJ DIR COIL MON QUAD B+Y			TG		-60	+60	VDC	3	4	KC	X
/S R6407	V SM RJ DIR COIL MON B3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6408	V SM RJ DIR COIL MON QUAD D-Y			TG		-60	+60	VDC	3	4	KC	X
/S R6408	V SM RJ DIR COIL MON D4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6409	V SM RJ DIR COIL MON QUAD B+R			TG		-60	+60	VDC	3	4	KC	X
/S R6409	V SM RJ DIR COIL MON B1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6410	V SM RJ DIR COIL MON QUAD D-R			TG		-60	+60	VDC	3	4	KC	X
/S R6410	V SM RJ DIR COIL MON D2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6411	V SM RJ DIR COIL MON QUAD D+R			TG		-60	+60	VDC	3	4	KC	X
/S R6411	V SM RJ DIR COIL MON D1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6412	V SM RJ DIR COIL MON QUAD B-R			TG		-60	+60	VDC	3	4	KC	X
/S R6412	V SM RJ DIR COIL MON B2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6413	V SM RJ DIR COIL MON QUAD A+R			TG		-60	+60	VDC	3	4	KC	X
/S R6413	V SM RJ DIR COIL MON A1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6414	V SM RJ DIR COIL MON QUAD C-R			TG		-60	+60	VDC	3	4	KC	X
/S R6414	V SM RJ DIR COIL MON C2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6415	V SM RJ DIR COIL MON QUAD C+R			TG		-60	+60	VDC	3	4	KC	X
/S R6415	V SM RJ DIR COIL MON C1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6416	V SM RJ DIR COIL MON QUAD A-R			TG		-60	+60	VDC	3	4	KC	X
/S R6416	V SM RJ DIR COIL MON A2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6481	V SM RJ AUTO COIL MON QUAD C+P			TG		-60	+60	VDC	3	4	KC	X
/S R6481	V SM RJ AUTO COIL MON C3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6482	V SM RJ AUTO COIL MON QUAD A-P			TG		-60	+60	VDC	3	4	KC	X
/S R6482	V SM RJ AUTO COIL MON A4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6483	V SM RJ AUTO COIL MON QUAD A+P			TG		-60	+60	VDC	3	4	KC	X
/S R6483	V SM RJ AUTO COIL MON A3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6484	V SM RJ AUTO COIL MON QUAD C-P			TG		-60	+60	VDC	3	4	KC	X
/S R6484	V SM RJ AUTO COIL MON C4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6485	V SM RJ AUTO COIL MON QUAD D+Y			TG		-60	+60	VDC	3	4	KC	X
/S R6485	V SM RJ AUTO COIL MON D3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

N-ACE

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	DATA RANGE UNITS	CAT	RESPONSE RATE	RESPONSE UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
S R6486	V SM RJ AUTO COIL MON QUAD B-Y			TG		-60	+60	VDC	3	4	KC	X
/S R6486	V SM RJ AUTO COIL MON B4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6487	V SM RJ AUTO COIL MON QUAD B+Y			TG		-60	+60	VDC	3	4	KC	X
/S R6487	V SM RJ AUTO COIL MON B3			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6488	V SM RJ AUTO COIL MON QUAD D-Y			TG		-60	+60	VDC	3	4	KC	X
/S R6488	V SM RJ AUTO COIL MON D4			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6489	V SM RJ AUTO COIL MON QUAD B+R			TG		-60	+60	VDC	3	4	KC	X
/S R6489	V SM RJ AUTO COIL MON B1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6490	V SM RJ AUTO COIL MON QUAD D-R			TG		-60	+60	VDC	3	4	KC	X
/S R6490	V SM RJ AUTO COIL MON D2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6491	V SM RJ AUTO COIL MON QUAD D+R			TG		-60	+60	VDC	3	4	KC	X
/S R6491	V SM RJ AUTO COIL MON D1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6492	V SM RJ AUTO COIL MON QUAD B-R			TG		-60	+60	VDC	3	4	KC	X
/S R6492	V SM RJ AUTO COIL MON B2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6493	V SM RJ AUTO COIL MON QUAD A+R			TG		-60	+60	VDC	3	4	KC	X
/S R6493	V SM RJ AUTO COIL MON A1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6494	V SM RJ AUTO COIL MON QUAD C-R			TG		-60	+60	VDC	3	4	KC	X
/S R6494	V SM RJ AUTO COIL MON C2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6495	V SM RJ AUTO COIL MON QUAD C+R			TG		-60	+60	VDC	3	4	KC	X
/S R6495	V SM RJ AUTO COIL MON C1			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
S R6496	V SM RJ AUTO COIL MON QUAD A-R			TG		-60	+60	VDC	3	4	KC	X
/S R6496	V SM RJ AUTO COIL MON A2			TG		-60	+60	VDC	3	4	KC	XXXXXXXXX
G R8801	V SM RCS INJ OXID FLOW A + PITCH			TG		0	+6	VDC	3	100	S/S	X
/G R8801	V SM RCS INJ OXID FLOW A3			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8802	V SM RCS INJ OXID FLOW A - PITCH			TG		0	+6	VDC	3	100	S/S	X
/G R8802	V SM RCS INJ OXID FLOW A4			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8803	V SM RCS INJ OXID FLOW A CW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8803	V SM RCS INJ OXID FLOW A1			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8804	V SM RCS INJ OXID FLOW A CCW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8804	V SM RCS INJ OXID FLOW A2			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8805	V SM RCS INJ OXID FLOW B + YAW			TG		0	+6	VDC	3	100	S/S	X
/G R8805	V SM RCS INJ OXID FLOW B3			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8806	V SM RCS INJ OXID FLOW B - YAW			TG		0	+6	VDC	3	100	S/S	X
/G R8806	V SM RCS INJ OXID FLOW B4			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

N-ACE

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL LOW	DATA RANGE HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
G R8807	V SM RCS INJ OXID FLOW B CW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8807	V SM RCS INJ OXID FLOW B1			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8808	V SM RCS INJ OXID FLOW B CCW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8808	V SM RCS INJ OXID FLOW B2			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8809	V SM RCS INJ OXID FLOW C + PITCH			TG		0	+6 VDC	3	100	S/S	X
/G R8809	V SM RCS INJ OXID FLOW C3			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8810	V SM RCS INJ OXID FLOW C - PITCH			TG		0	+6 VDC	3	100	S/S	X
/G R8810	V SM RCS INJ OXID FLOW C4			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8811	V SM RCS INJ OXID FLOW C CW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8811	V SM RCS INJ OXID FLOW C1			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8812	V SM RCS INJ OXID FLOW C CCW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8812	V SM RCS INJ OXID FLOW C2			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8813	V SM RCS INJ OXID FLOW D + YAW			TG		0	+6 VDC	3	100	S/S	X
/G R8813	V SM RCS INJ OXID FLOW D3			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8814	V SM RCS INJ OXID FLOW D - YAW			TG		0	+6 VDC	3	100	S/S	X
/G R8814	V SM RCS INJ OXID FLOW D4			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8815	V SM RCS INJ OXID FLOW D CW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8815	V SM RCS INJ OXID FLOW D1			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8816	V SM RCS INJ OXID FLOW D CCW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8816	V SM RCS INJ FUEL FLOW D2			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8817	V SM RCS INJ FUEL FLOW A + PITCH			TG		0	+6 VDC	3	100	S/S	X
/G R8817	V SM RCS INJ FUEL FLOW A3			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8818	V SM RCS INJ FUEL FLOW A - PITCH			TG		0	+6 VDC	3	100	S/S	X
/G R8818	V SM RCS INJ FUEL FLOW A4			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8819	V SM RCS INJ FUEL FLOW A CW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8819	V SM RCS INJ FUEL FLOW A1			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8820	V SM RCS INJ FUEL FLOW A CCW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8820	V SM RCS INJ FUEL FLOW A2			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8821	V SM RCS INJ FUEL FLOW B + YAW			TG		0	+6 VDC	3	100	S/S	X
/G R8821	V SM RCS INJ FUEL FLOW B3			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8822	V SM RCS INJ FUEL FLOW B - YAW			TG		0	+6 VDC	3	100	S/S	X
/G R8822	V SM RCS INJ FUEL FLOW B4			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX
G R8823	V SM RCS INJ FUEL FLOW B CW ROLL			TG		0	+6 VDC	3	100	S/S	X
/G R8823	V SM RCS INJ FUEL FLOW B1			TG		0	+6 VDC	3	100	S/S	XXXXXXXXX

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CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
REACTION CONTROL

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S211111111111+S T0000000111 U 7V1346789012 B
G R8824	V SM RCS INJ FUEL FLOW A CCW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8824	V SM RCS INJ FUEL FLOW A2			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8825	V SM RCS INJ FUEL FLOW C + PITCH			TG		0	+6	VDC	3	100	S/S	X
/G R8825	V SM RCS INJ FUEL FLOW C3			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8826	V SM RCS INJ FUEL FLOW C - PITCH			TG		0	+6	VDC	3	100	S/S	X
/G R8826	V SM RCS INJ FUEL FLOW C4			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8827	V SM RCS INJ FUEL FLOW C CW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8827	V SM RCS INJ FUEL FLOW C1			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8828	V SM RCS INJ FUEL FLOW C CCW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8828	V SM RCS INJ FUEL FLOW C2			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8829	V SM RCS INJ FUEL FLOW D + YAW			TG		0	+6	VDC	3	100	S/S	X
/G R8829	V SM RCS INJ FUEL FLOW D3			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8830	V SM RCS INJ FUEL FLOW D - YAW			TG		0	+6	VDC	3	100	S/S	X
/G R8830	V SM RCS INJ FUEL FLOW D4			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8831	V SM RCS INJ FUEL FLOW D CW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8831	V SM RCS INJ FUEL FLOW D1			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX
G R8832	V SM RCS INJ FUEL FLOW D CCW ROLL			TG		0	+6	VDC	3	100	S/S	X
/G R8832	V SM RCS INJ FUEL FLOW D2			TG		0	+6	VDC	3	100	S/S	XXXXXXXXX

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CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
COMMUNICATIONS AND INSTRUMENTATION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	ACCESSIBILITY DISP	GSE	CAL	DATA RANGE LOW	DATA RANGE HIGH	DATA RANGE UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY S21111111111+S T0000000111 U 7V1346789012 B
C T0060 V	TV VIDEO OUTPUT			USMG					3			XXXXXXXXXXX
S T0151 X	HI GAIN ANT SCAN LIMIT C/W GSE			AG			DET	EVENT	3			XXX
C T0276 X	CREW ALERT C/W GSE MON			AG			DET	EVENT	3			X
C T0276 X	CREW ALERT C/W GSE MON			AG			DET	EVENT	3			XXX
C T0379 V	SUBCARRIER REFERENCE 512KC, NO 1			USMG					3			XXXXXXXXXXX
C T0380 V	DATA RATE TIMING NO 1			USMG					3			XXXXXXXXXXX
C T0382 V	SUB FRAME RATE TIMING (1PPS)			USMG					3			XXXXXXXXXXX
C T0383 V	RZ SERIAL DATA OUTPUT			USMG					3			XXXXXXXXXXX
C T0384 V	INTERCOM, CM TO GROUND			USMG					3			XXXXXXXXXXX
C T1561 V	CBW 1 CH 1-4 HARDLINE COMP OUT			USMG					3			X
C T1563 V	CBW 1 CH 5-8 HARDLINE COMP OUT			USMG					3			X
C T1565 V	CBW 1 CH 9,10 HARDLINE COMP OUT			USMG					3			X
S T1573 V	CBW 3 CH 1-4 HARDLINE COMP OUT			USMG					3			X
S T1575 V	CBW 3 CH 5-8 HARDLINE COMP OUT			USMG					3			X
S T1577 V	CBW 3 CH 9,10 HARDLINE COMP OUT			USMG					3			X
C T1579 V	PBW 1 MOD-PKG HARDLINE COMP OUT			USMG					3			X
C T1583 V	LL COMM 1 HARDLINE DPDM OUT			USMG					3			X
S T1591 V	HL COMM 2 HARDLINE DPDM OUT			USMG					3			X

APPENDIX F

ACE ALTERNATE MISSION REQUIREMENTS

OPER

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

SUBSYSTEM
ELECTRICAL POWER

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
S C2108	C SM BUS A CURRENT C14-602			G		+0	+100	AMPS	6	1	S/S	X
S C2109	C SM BUS B CURRENT C14-602			G		+0	+100	AMPS	6	1	S/S	X
S C2110	V DC VOLTAGE SM MAIN BUS A			G		+0	+40	VDC	6	1	S/S	X
S C2111	V DC VOLTAGE SM MAIN BUS B			G		+0	+40	VDC	6	1	S/S	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
S P0001 P	HE PRESS TANK			G		+0	+5K	PSIA	6	100	CPS	X
S P0002 T	HE TEMP TANK			G		-100	+200	DEG F	6	1	CPS	X
S P0003 P	PRESS OXIDIZER TANKS			G		+0	+250	PSIA	6	100	CPS	X
S P0006 P	PRESS FUEL TANKS			G		+0	+250	PSIA	6	100	CPS	X
S P0011 Q	TOTAL QUANTITY OXIDIZER PRI/AUX			G		+0	+100	PCNT	6	1	CPS	X
S P0012 Q	TOTAL QUANTITY FUEL PRI/AUX			G		+0	+100	PCNT	6	1	CPS	X
S P0022 H	POSITION FUEL/OX VLV 1 POT B			G		+0	+90	DEG	6	100	CPS	X
S P0023 H	POSITION FUEL/OX VLV 2 POT B			G		+0	+90	DEG	6	100	CPS	X
S P0024 H	POSITION FUEL/OX VLV 3 POT B			G		+0	+90	DEG	6	100	CPS	X
S P0025 H	POSITION FUEL/OX VLV 4 POT B			G		+0	+90	DEG	6	100	CPS	X
S P0026 H	POSITION FUEL/OX VLV 1 POT A			G		+0	+90	DEG	6	100	CPS	X
S P0027 H	POSITION FUEL/OX VLV 2 POT A			G		+0	+90	DEG	6	100	CPS	X
S P0028 H	POSITION FUEL/OX VLV 3 POT A			G		+0	+90	DEG	6	100	CPS	X
S P0029 H	POSITION FUEL/OX VLV 4 POT A			G		+0	+90	DEG	6	100	CPS	X
S P0030 X	HE ISOLATION VALVE 1			G		CLOSE	OPEN	EVENT	6	10	S/S	X
S P0031 X	HE ISOLATION VALVE 2			G		CLOSE	OPEN	EVENT	6	10	S/S	X
S P0048 T	TEMP ENGINE FUEL FEED LINE			G		+0	+200	DEG F	6	1	S/S	X
S P0049 T	TEMP ENGINE OXIDIZER FEED LINE			G		+0	+200	DEG F	6	1	S/S	X
S P0061 T	ENG INJECTOR FLANGE TEMP NO 1			G		+0	+500	DEG F	6	1	S/S	X
S P0062 T	ENG INJECTOR FLANGE TEMP NO 2			G		+0	+500	DEG F	6	1	S/S	X
S P0600 P	ENG VLV ACT SYS TANK PRESS PRI N2			G		+0	+5K	PSIA	6	100	CPS	X
S P0601 P	ENG VLV ACT SYS TANK PRESS SEC N2			G		+0	+5K	PSIA	6	100	CPS	X
S P0640 Q	PROPELLANT UNBALANCE OXIDIZER			G		-300	+300	LB	6	1	S/S	X
S P0654 P	REGULATOR OUTLET PRESS PP-6			G		+0	+300	PSIA	6	100	CPS	X
S P0655 Q	QUAN OX TANK 1 PRI			G		+0	+50	PCNT	6	1	S/S	X
S P0656 Q	QUAN OX TANK 2			G		+0	+60	PCNT	6	1	S/S	X
S P0657 Q	QUAN FUEL TANK 1 PRI			G		+0	+50	PCNT	6	1	S/S	X
S P0658 Q	QUAN FUEL TANK 2			G		+0	+60	PCNT	6	1	S/S	X
S P0661 P	PRESS ENGINE CHAMBER			G		+0	+150	PSIA	6	2K	CPS	X
S P0662 X	SERVICE ENG SOL VLV 1,2 SIG MON			G		OFF	ON	EVENT	6	200	CPS	X
S P0664 X	SERVICE ENG SOL VLV 3,4 SIG MON			G		OFF	ON	EVENT	6	200	CPS	X
S P0666 X	SERVICE ENG SOL VLV 5 SIG MON			G		OFF	ON	EVENT	6	200	CPS	X
S P0667 X	SERVICE ENG SOL VLV 6 SIG MON			G		OFF	ON	EVENT	6	200	CPS	X
S P0670 C	ENGINE PROPELLANT VALVE 1 CURRENT			G		+0	+2	AMP	6	100	CPS	X

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
S P0671	C	ENGINE PROPELLANT VALVE 2 CURRENT			G		+0	+2	AMP	6	100	CPS	X
S P0672	C	ENGINE PROPELLANT VALVE 3 CURRENT			G		+0	+2	AMP	6	100	CPS	X
S P0673	C	ENGINE PROPELLANT VALVE 4 CURRENT			G		+0	+2	AMP	6	100	CPS	X
S P0674	C	SERVICE ENG SOL VALVE 5 CURRENT			G		+0	+2	AMP	6	100	CPS	X
S P0675	C	SERVICE ENG SOL VALVE 6 CURRENT			G		+0	+2	AMP	6	100	CPS	X
S P0930	P	PRESS FUEL SM/ENG INTERFACE			G		+0	+300	PSIA	6	500	CPS	X
S P0931	P	PRESS OX SM/ENG INTERFACE			G		+0	+300	PSIA	6	500	CPS	X
S P1000	X	PITCH 1 GIMBAL DRIVE FAIL			G			FAIL	EVENT	6	500	S/S	X
S P1001	X	YAW 1 GIMBAL DRIVE FAIL			G			FAIL	EVENT	6	500	S/S	X
S P1002	X	SPS PU SENSOR FAIL			G			FAIL	EVENT	6	25	S/S	X
S P1003	X	PITCH 2 GIMBAL DRIVE FAIL			G			FAIL	EVENT	6	500	S/S	X
S P1004	X	YAW 2 GIMBAL DRIVE FAIL			G			FAIL	EVENT	6	500	S/S	X
S P1006	X	PRIMARY PITCH GIMBAL MOTOR ON			G		OFF	ON	EVENT	6	10	S/S	X
S P1007	X	SECONDARY PITCH GIMBAL MOTOR ON			G		OFF	ON	EVENT	6	10	S/S	X
S P1008	X	PRIMARY YAW GIMBAL MOTOR ON			G		OFF	ON	EVENT	6	10	S/S	X
S P1009	X	SECONDARY YAW GIMBAL MOTOR ON			G		OFF	ON	EVENT	6	10	S/S	X
S P1022	X	SPS ROUGH COMBUSTION ENG CUTOFF			G			CUTOFF	EVENT	6	500	S/S	X
S P1031	D	SPS VIBRATION FCSM MONITOR 1			G		-250	+250	G	6	5K	CPS	X
S P1032	D	SPS VIBRATION FCSM MONITOR 2			G		-250	+250	G	6	5K	CPS	X
S P1033	D	SPS VIBRATION FCSM MONITOR 3			G		-250	+250	G	6	5K	CPS	X
S P3100	X	FUEL TANK 1 PT SENSOR 1 TOP			G		WET	DRY	EVENT	6	500	CPS	X
S P3101	X	FUEL TANK 1 PT SENSOR 2			G		WET	DRY	EVENT	6	500	CPS	X
S P3102	X	FUEL TANK 1 PT SENSOR 3			G		WET	DRY	EVENT	6	500	CPS	X
S P3103	X	FUEL TANK 1 PT SENSOR 4			G		WET	DRY	EVENT	6	500	CPS	X
S P3104	X	FUEL TANK 1 PT SENSOR 5			G		WET	DRY	EVENT	6	500	CPS	X
S P3105	X	FUEL TANK 1 PT SENSOR 6			G		WET	DRY	EVENT	6	500	CPS	X
S P3106	X	FUEL TANK 1 PT SENSOR 7 BOTTOM			G		WET	DRY	EVENT	6	500	CPS	X
S P3107	X	FUEL TANK 2 PT SENSOR 1 TOP			G		WET	DRY	EVENT	6	500	CPS	X
S P3108	X	FUEL TANK 2 PT SENSOR 2			G		WET	DRY	EVENT	6	500	CPS	X
S P3109	X	FUEL TANK 2 PT SENSOR 3			G		WET	DRY	EVENT	6	500	CPS	X
S P3110	X	FUEL TANK 2 PT SENSOR 4			G		WET	DRY	EVENT	6	500	CPS	X
S P3111	X	FUEL TANK 2 PT SENSOR 5			G		WET	DRY	EVENT	6	500	CPS	X
S P3112	X	FUEL TANK 2 PT SENSOR 6			G		WET	DRY	EVENT	6	500	CPS	X
S P3113	X	FUEL TANK 2 PT SENSOR 7			G		WET	DRY	EVENT	6	500	CPS	X

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
S P3114	X	FUEL TANK 2 PT SENSOR 8 BOTTOM			G		WET	DRY	EVENT	6	500	CPS	X
S P3115	X	OX TANK 1 PT SENSOR 1 TOP			G		WET	DRY	EVENT	6	500	CPS	X
S P3116	X	OX TANK 1 PT SENSOR 2			G		WET	DRY	EVENT	6	500	CPS	X
S P3117	X	OX TANK 1 PT SENSOR 3			G		WET	DRY	EVENT	6	500	CPS	X
S P3118	X	OX TANK 1 PT SENSOR 4			G		WET	DRY	EVENT	6	500	CPS	X
S P3119	X	OX TANK 1 PT SENSOR 5			G		WET	DRY	EVENT	6	500	CPS	X
S P3120	X	OX TANK 1 PT SENSOR 6			G		WET	DRY	EVENT	6	500	CPS	X
S P3121	X	OX TANK 1 PT SENSOR 7 BOTTOM			G		WET	DRY	EVENT	6	500	CPS	X
S P3122	X	OX TANK 2 PT SENSOR 1 TOP			G		WET	DRY	EVENT	6	500	CPS	X
S P3123	X	OX TANK 2 PT SENSOR 2			G		WET	DRY	EVENT	6	500	CPS	X
S P3124	X	OX TANK 2 PT SENSOR 3			G		WET	DRY	EVENT	6	500	CPS	X
S P3125	X	OX TANK 2 PT SENSOR 4			G		WET	DRY	EVENT	6	500	CPS	X
S P3126	X	OX TANK 2 PT SENSOR 5			G		WET	DRY	EVENT	6	500	CPS	X
S P3127	X	OX TANK 2 PT SENSOR 6			G		WET	DRY	EVENT	6	500	CPS	X
S P3128	X	OX TANK 2 PT SENSOR 7			G		WET	DRY	EVENT	6	500	CPS	X
S P3129	X	OX TANK 2 PT SENSOR 8 BOTTOM			G		WET	DRY	EVENT	6	500	CPS	X
S P3152	H	PRI VALVE SERVO OUTPUT			G		+0	+100	PCNT	6	1	CPS	X
S P3153	H	SEC VALVE SERVO OUTPUT			G		+0	+100	PCNT	6	1	CPS	X
S P3158	Q	AUX OX TLM OUTPUT			G		+0	32K	LBS	6	1	CPS	X
S P3159	Q	AUX FUEL TLM OUTPUT			G		+0	16K	LBS	6	1	CPS	X
S P3161	Q	PRI OX TANK 1 TLM OUTPUT			G		+0	16K	LBS	6	1	CPS	X
S P3163	Q	PRI FUEL TANK 1 TLM OUTPUT			G		+0	8K	LBS	6	1	CPS	X
F P5196	P	OUTLET HELIUM PRESS PT-3 SPS			G		+0	+5000	PSIG	6	1	S/S	X
F P5199	X	LV108 OPEN OXIDIZER VENT			G			OPEN	EVENT	6	1	S/S	X
F P5200	X	LV108 OPEN FUEL VENT			G			OPEN	EVENT	6	1	S/S	X
F P5306	P	OXIDIZER INLET PRESSURE			G		+0	+150	PSIA	6	1	S/S	X
F P5307	P	OXIDIZER OUTLET PRESSURE			G		+0	+600	PSIA	6	1	S/S	X
F P5316	P	FUEL INLET PRESSURE			G		+0	+150	PSIA	6	1	S/S	X
F P5317	P	FUEL OUTLET PRESSURE			G		+0	+600	PSIA	6	1	S/S	X
F P5351	T	TEMP SM SPS HELIUM TP-2			G		-250	+50	DEG F	6	1	S/S	X
F P5352	P	PRESS SM SPS HELIUM PP-2			G		+0	+6000	PSIG	6	1	S/S	X
F P5353	X	LV9 OPEN SM SPS HELIUM LOAD			G			OPEN	EVENT	6	1	S/S	X
F P5354	X	LV9 CLOSE SM SPS HELIUM LOAD			G			CLOSE	EVENT	6	1	S/S	X
F P5355	X	LV8 OPEN SPS HELIUM VENT			G			OPEN	EVENT	6	1	S/S	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
F P5356	X	LV8 CLOSE SPS HELIUM VENT			G			CLOSE	EVENT	6	1	S/S	X
F P5357	T	TT101 SM SPS FUEL TEMP			G		+0	+200	DEG F	6	1	S/S	X
F P5358	P	PT101 SM SPS FUEL PRESS			G		+0	+500	PSIG	6	1	S/S	X
F P5359	X	PV101 LOAD SM SPS FUEL			G			LOAD	EVENT	6	1	S/S	X
F P5360	X	PV101 CIRCL SM SPS FUEL			G			CIRC	EVENT	6	1	S/S	X
F P5361	X	PV102 OPEN SM SPS FUEL			G			OPEN	EVENT	6	1	S/S	X
F P5362	X	PV102 CLOSE SM SPS FUEL			G			CLOSE	EVENT	6	1	S/S	X
F P5363	X	PV101 LOAD SM SPS OXID			G			LOAD	EVENT	6	1	S/S	X
F P5364	X	PV101 CIRCL SM SPS OXID			G			CIRC	EVENT	6	1	S/S	X
F P5365	X	PV102 OPEN SM SPS OXID			G			OPEN	EVENT	6	1	S/S	X
F P5366	X	PV102 CLOSE SM SPS OXID			G			CLOSE	EVENT	6	1	S/S	X
F P5367	T	TT101 TEMP SM SPS OXID			G		+0	+200	DEG F	6	1	S/S	X
F P5368	P	PT101 PRESS SM SPS OXID			G		+0	+500	PSIG	6	1	S/S	X
F P5900	Q	OXIDIZER FLOW RATE			G		+0	+100	GPM	6	1	S/S	X
F P5950	Q	FUEL FLOW RATE			G		+0	+100	GPM	6	1	S/S	X
G P5970	V	PS-1 DC VOLT OUT C14-455			G		+0	+35	VDC	6	1	S/S	X
G P5971	C	PS-1 DC CURRENT OUT C14-455			G		+0	+200	AMPS	6	1	S/S	X
G P9000	C	CURRENT CLUTCH DIFF PITCH 1			G		-1.2	+1.2	AMP	6	100	CPS	X
G P9001	C	CURRENT CLUTCH DIFF PITCH 2			G		-1.2	+1.2	AMP	6	100	CPS	X
G P9002	C	CURRENT CLUTCH DIFF YAW 1			G		-1.2	+1.2	AMP	6	100	CPS	X
G P9003	C	CURRENT CLUTCH DIFF YAW 2			G		-1.2	+1.2	AMP	6	100	CPS	X
G P9004	C	CURRENT GIMBAL CLUTCH PITCH +1			G		+0	+1.2	AMP	6	100	CPS	X
G P9005	C	CURRENT GIMBAL CLUTCH PITCH -1			G		+0	+1.2	AMP	6	100	CPS	X
G P9006	C	CURRENT GIMBAL CLUTCH PITCH +2			G		+0	+1.2	AMP	6	100	CPS	X
G P9007	C	CURRENT GIMBAL CLUTCH PITCH -2			G		+0	+1.2	AMP	6	100	CPS	X
G P9008	C	CURRENT GIMBAL CLUTCH YAW +1			G		+0	+1.2	AMP	6	100	CPS	X
G P9009	C	CURRENT GIMBAL CLUTCH YAW -1			G		+0	+1.2	AMP	6	100	CPS	X
G P9010	C	CURRENT GIMBAL CLUTCH YAW +2			G		+0	+1.2	AMP	6	100	CPS	X
G P9011	C	CURRENT GIMBAL CLUTCH YAW -2			G		+0	+1.2	AMP	6	100	CPS	X
G P9012	V	VOLT GIMBAL CLUTCH PITCH +1			G		+0	+20	VDC	6	100	CPS	X
G P9013	V	VOLT GIMBAL CLUTCH PITCH -1			G		+0	+20	VDC	6	100	CPS	X
G P9014	V	VOLT GIMBAL CLUTCH PITCH +2			G		+0	+20	VDC	6	100	CPS	X
G P9015	V	VOLT GIMBAL CLUTCH PITCH -2			G		+0	+20	VDC	6	100	CPS	X
G P9016	V	VOLT GIMBAL CLUTCH YAW +1			G		+0	+20	VDC	6	100	CPS	X

CSM MEASUREMENT REQUIREMENTS
FOR BLOCK II SPACECRAFT FOR APOLLO CSM SYSTEM

OPER

SUBSYSTEM
SERVICE PROPULSION

MEAS. ID	MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
G P9017	V VOLT GIMBAL CLUTCH YAW -1			G		+0	+20	VDC	6	100	CPS	X
G P9018	V VOLT GIMBAL CLUTCH YAW +2			G		+0	+20	VDC	6	100	CPS	X
G P9019	V VOLT GIMBAL CLUTCH YAW -2			G		+0	+20	VDC	6	100	CPS	X
G P9020	V VOLT GIMBAL CLUTCH COMM PITCH			G		-20	+20	VDC	6	100	CPS	X
G P9021	V VOLT GIMBAL CLUTCH COMM YAW			G		-20	+20	VDC	6	100	CPS	X
G P9026	H POSITION PITCH FEEDBACK DEMOD OUT			G		-8	+8	DEG	6	100	CPS	X
G P9027	H POSITION YAW FEEDBACK DEMOD OUT			G		-10	+10	DEG	6	100	CPS	X
G P9028	R RATE PITCH FEEDBACK DEMOD OUT			G		-2.0	+2.0	VDC	6	100	CPS	X
G P9029	R RATE YAW FEEDBACK DEMOD OUT			G		-2.0	+2.0	VDC	6	100	CPS	X
S P9506	P PRESS OX TRANSFER LINE TP-17			G		+0	+300	PSIA	6	100	CPS	X
S P9507	P PRESS FUEL TRANSFER LINE TP-18			G		+0	+300	PSIA	6	100	CPS	X

OPER

C S M M E A S U R E M E N T R E Q U I R E M E N T S
F O R B L O C K II S P A C E C R A F T F O R A P O L L O C S M S Y S T E M

SUBSYSTEM
GSE

MEAS. ID		MEASUREMENT DESCRIPTION	ACCESSIBILITY TM/TR	DISP	GSE	CAL	DATA RANGE LOW	HIGH	UNITS	CAT	RESPONSE RATE	UNIT	S/C EFFECTIVITY SM 102
G V9001	V	FACILITY DC VOLTS			G		+0	+32	VDC	6	1	S/S	X
G V9002	E	PAD 16 INDUST POWER MON FAC			G		NA	NA	NA	6			X
G V9003	E	PAD 16 CRITICAL POWER MON FAC			G		NA	NA	NA	6			X
G V9004	C	AMPS PS BAY 1 C14-602			G		+0	+40	AMPS	6	1	S/S	X
G V9005	C	AMPS PS BAY 2 C14-602			G		+0	+40	AMPS	6	1	S/S	X
G V9006	V	VOLTS PS BAY 1 C14-602			G		+0	+35	VDC	6	1	S/S	X
G V9007	V	VOLTS PS BAY 2 C14-602			G		+0	+35	VDC	6	1	S/S	X
G V9008	V	400 CPS REFERENCE			G		+0	+26	VAC	6	1K	CPS	X
G V9009	W	TIMING 100 PPS CODED			G		NA	NA	NA	6			X