APPENDIX A

ABBREVIATIONS AND SYMBOLS

AB	Aft bulkhead
AC	Alternating current
A/C	Audio center
A/C	A and C quads (RCS)
ACCEL	Accelerometer
ACCUM	Accumulator
ACE	Acceptance checkout equipment
ACK	Acknowledge
ACS	Attitude control subsystem
ACTY	Activity
A/D	Analog to digital
ADA	Angular differentiating accelerometer
ADAP	Adapter
ADJ	Adjust
AESB	Aft equipment stowage bay
AF	Audio frequency/atmospheric flight
AGC	Automatic gain control
AH	Ampere-hours
AM	Amplitude modulation
AMPL	Amplifier
AMPS	Amperes
AMS	Apollo mission simulator
ANAL	Analyzer
ANLG	Analog
ANT	Antenna
AOA	Angle of Attack
AOH	Apollo Operations Handbook
ARS	Attitude reference subsystem
ASA	Abort sensor assembly
ASCP	Attitude set control panel
ASD	Apollo standard detonator
AS/GPI	Attitude set/gimbal position indicator
ATT SET	Attitude set
ATT	Attenuator/attitude
AUTO	Automatic
AUX	Auxiliary
AVC	Automatic volume control
BARO	Barometric
BAT	Battery
BCD	Binary-coded decimal
BCN	Beacon
B/D	B and D quads (RCS)
BECO	Booster engine cutoff
BIOINST	Bioinstrumentation
BIOMED	Biomedical
BLWR	Blower
BMAG	Body-mounted attitude gyro
B.O.	Breakout switches
BPC	Boost protective cover
bps	Bits per second
BRT	Bright
Btu	British thermal unit
BU	Backup
BUR	Backup rate
BURR	Backup rate roll
BURP	Backup rate pitch
BURY	Backup rate yaw
CAB	Cabin
CA(OH)2	Calcium hydroxide
CAMR	Camera
CB	Circuit breaker
cc	Cubic centimeter
CCW	Counterclockwise
C&D	Controls and displays
CDF	Confined detonating fuse
CDH	Constant delta altitude
CDU	Coupling data unit
CF	Coasting flight
CFE	Contractor-furnished equipment
CFP	Concentric flight plan
cfm	Cubic feet per minute
CG	Center of gravity
CHAN	Channel
CHGR	Charger
CLR	Clear
CM	Command module
CMC	Command module computer
CMD	Command
COAS	Crewman optical alignment sight

COI	Contingency orbit insertion
COMM	Communications
COMP	Compressor, computing
COND	Condenser/conditioner
CONT	Control
CONTR	Control
CO2	Carbon dioxide
CPC	Cold plate clamp
cps	Cycles per second
CRYO	Cryogenic
CSC	Cosecant computing amplifier
CSI	Coelliptic sequence initiation
CSM	Command and service module
CSS	Computer subsystem
CTE	Central timing equipment
CTS	Computer test set
CW	Clockwise/continuous wave
$\overline{CW}$	Not clockwise
C/W	Caution and warning
CWG	Constant wear garment
C&WS	Caution and warning system
DA	Detector assembly
D/A	Digital-to-analog
DAC	Digital to analog converter
DAP	Digital auto pilot
db	Decibel
DB	Deadband
DC	Direct current
D&C	Displays and controls
DCT	Docked configuration transfer
D&CT	Docking and crew transfer
DDP	Data distribution panel
DEA	Display electronic assembly
DEC	Decrease
DECR	Decrease
DEG	Degree
DEMOD	Demodulate
DET	Digital event timer/detector
DISCH	Discharge
DLH	Docking lock handle
DN	Down
DPST	Double-pole single-throw
DRG	Digital ranging generator
DS	Docking subsystem
DSE	Data storage equipment
DSIF	Deep Space Instrumentation Facility
DSKY	Display and keyboard
DU	Direct ullage
DUP	Duplex
E	Elevation angle
ECA	Electronic control assembly
EC&L	Error counter and logic
ECG	Electrocardiograph
ECO	Engine combustion/ engine cutoff
ECS	Environmental control system
ECU	Environmental control unit
EDA	Electronic display assembly
EDS	Emergency detection system
Eig	Voltage-inner gimbal
EL	Electroluminescent
ELEC	Electronics
ELS	Earth landing subsystem
ELSC	Earth landing sequence controller
EMER	Emergency
Emg	Voltage-middle gimbal
EMS	Entry monitor system
EMU	Extravehicular mobility unit
ENC	Encode
ENG	Engine
ENTR	Enter
Eog	Voltage-outer gimbal
EOS	Emergency oxygen system
EPS	Electrical power subsystem
EQUIP	Equipment
ERR	Error
ESS	Essential
EV	Extravehicular
EVT	Extravehicular transfer
EVA	Extravehicular activities
EVAP	Evaporator
EVCT	Extravehicular crew transfer
E Visor	Extravehicular visor assembly
EXCH	Exchanger
EXH	Exhaust
EXT	Extension
EXTD	Extended
FL	Flash
FC (F/C)	Fuel cell
FCD	Fecal containment system
FCSD	Flight Crew Support Division (MSC)
FCSM	Flight combustion stability monitor

FDAI	Flight director attitude indicator
FE	Fecal emesis
FLSC	Flexible linear-shaped charge
FM	Frequency modulation
FOV	Field of view
FPS	Feet per second/frame per second
FQR	Flight qualification recorder
FQTR	Flight qualification tape recorder
FS	Fail sense
FST	Free space transfer
FUNCT	Functional
FWD	Forward
GA	Gyro assembly
G&C	Guidance and control
g	Gravity
g/v	Gravity vs velocity
GDC	Gyro display coupler
GET	Ground elapse time
GFP	Government-furnished property
GLY	Glycol
GMBL	Gimbal
GMT	Greenwich Mean Time
G/N (G&N)	Guidance and navigation
GN2	Gaseous nitrogen
GPI/FPI	Gimbal position indicator and fuel pressure indicator
GPI	Gimbal position indicator
GSE	Ground support equipment
GSOP	Guidance system operations plan
GTA	Ground test access
GUID	Guidance
ha	Apogee altitude
HBR	High-bit rate
He	Helium
HEX	Hexagonal
HF	High frequency
HGA	High gain antenna
HI	High
hp	Perigee altitude
HR	Hour
HT EXCH	Heat exchanger
HTRS	Heaters
H2	Hydrogen
H2O	Water
Hz	Hertz (cps)
ICDU	Inertial coupling data unit
ICS	Intercommunication system
IECO	Inboard engine cut-off
IF	Intermediate frequency
IGA	Inner gimbal angle
IGN	Ignition
IMP	Impulse
IMU	Inertial measurement unit
INCR (INC)	Increase
IND	Indicator
INST (INSTR)	Instrument
INV	Inverter
IPB	Illuminated pushbutton
ips	Inches per second
IRIG	Inertial rate integrating gyro
ISOL	Isolation
ISS	Inertial subsystem
IU	Instrument units
JETT	Jettison
KBS (KBPS)	Kilo bits per second
kc	Kilocycle
KHz	Kilo Hertz (kilocycles)
kmc	Kilomegacycle
KmHz	Kilomega Hertz
KOH	Potassium hydroxide
LAT	Latitude
lb/hr	Pounds per hour
lb min	Pounds per minute
LBR	Low-bit rate
LCC	Launch control center
LCG	Liquid cooled garment
LDEC	Lunar decking events controller
LDG	Landing
LEA	Launch escape assembly
LEB	Lower equipment bay
LEM	Launch escape motor
LES	Launch escape system
LET	Launch escape tower
LEV	Launch escape vehicle
LGS	LM guidance computer
LHEB	Left-hand forward equipment bay
LIO	Liquid
LLOS	Landmark line of sight
LM	Lunar module

LMK	Landmark
LO	Low
LOC	Lunar orbit coast
LOI	Lunar orbit insertion
LONG	Longitude
LOR	Lunar orbit rendezvous
LOS	Line of sight
LPH	Legrest pin handle
LSB	Least significant bit
LSC	Linear shaped charge
LSSC	Lunar module separation
LT	Light
LTG	Lighting
LV	Launch vehicle
MAN	Manual
MANF	Manifold
MAX	Maximum
mc	Megacycles
MC	Midcourse correction
MCC	Mission Control Center
MCT	Memory cycle time
MDA	Motor drive amplifier
MDC	Main display console
MDF	Mild detonating fuse
MERU	Milli earth rate unit
MESC	Master event sequence controller
MGA	Middle gimbal angle
MGMT	Management
MHz	Mega Hertz
MIN	Minimum/minute
MMH	Monomethylhydrazine
mm Hg	Millimeters of mercury
MN A	Main bus A
MN B	Main bus B
MSC	Manned Spacecraft Center
MSD	Monitor selection decoder
MSFC	Marshall Space Flight Center
MSFN	Manned space flight network
MSN	Mission
MT	Mission timer
MTVC	Manual thrust vector control
MULTI	Multiplexer
NAV	Navigation
NB	Navigation base
NON	None
NORM	Normal
NPDS	Nuclear particle detection system
NR	North American Rockwell Corporation
NRZ	Non-return to zero
N2	Nitrogen
N2B	Gaseous nitrogen
N2H4	Hydrazine (fuel)
N2O4	Nitrogen tetroxide (oxidizer)
OCDU	Optical coupling data unit
OECO	Outboard engine cutoff
OGA	Outer gimbal angle
OI	Orbit insertion
OMNI	Omnidirectional
OPR	Operator
ORDEAL	Orbit rate drive electronics Apollo LM
OSC	Oscillator
OSS	Optics subsystem
OVLD	Overload
OXID	Oxidizer
O2	Oxygen
p	Roll control axis
PA	Power amplifier
PAM	Pulse amplitude modulation
PB	Pushbutton
P/B	Playback
PCM	Pulse code modulation/pitch control motor
PCVB	Pyro continuity verification box
PF	Powered flight
PGA	Pressure garment assembly
PGNCS	Primary guidance, navigation and control system
PH	Phase
pH	Alkalinity to acidity content (hydrogen ion concentration)
PIPA	Pulsed integrating pendulous accelerometer
PKG	Package
PL	Postlanding
PLSS	Portable life support system
PLV	Postlanding ventilation
PLVC	Postlanding ventilation control
PM	Phase modulation
PMP	Premodulation processor

POT	Potable
PP	Partial pressure
PPK	Pilot's preference kit
pps	Pulses-per-second
PRD	Personnel radiation dosimeter
PRESS	Pressure - pressurize - pressurization
PRF	Pulse repetition frequency
PRIM (PRI)	Primary
PRN	Pseudo-random noise
PROG	Program
PROP	Propellant
PRPLNT	Propellant
PRR	Pulse repetition rate
PSA	Power servo assembly
PSC	Pressure suit circuit
PSI	Pounds per square inch
PSIA	Pounds per square inch absolute
PSID	Pounds per square inch differential
PSIG	Pounds per square inch gauge
PSO	Pad safety officer
PTT	Push to talk
PU	Propellant utilization
PUGS	Propellant utilization and gauging system
PWR	Power
PYRO	Pyrotechnic
q	Pitch control axis
QTY	Quantity
r	Yaw control axis
RAD	Radiator
RAI	Roll attitude indicator
RC	Rotation control
RCDR	Recorder
RCS	Reaction control system
RCSC	Reaction control system controller
RCV (RCVR)	Receive/Receiver
REACQ	Reacquire
REACS	Reactants
REC	Receive
RECT	Rectifier
RECY	Recovery
REFSMMAT	Ref-to-stable member matrix
REG	Regulator
REL	Release
RESVR	Reservoir
REV	Reverse
RF	Radio frequency
RHC	Rotational hand control
RHEB	Right-hand equipment bay
RHFEB	Right-hand forward equipment bay
RJD	Reaction jet driver
RJEC	Reaction jet engine ON-OFF control
R/L	Right/Left
RLSE	Release
RLVDT	Rotary linear variable differential transformer
RLY	Relay
R-M	Reference and measurement
RNDZ	Rendezvous
RNG	Ranging
ROT	Rotation
R/R	Remove/replace
RRT	Rendezvous radar transponder
RSET	Reset
RSI	Roll stability indicator
RSM	Radiation survey meter
RSO	Range safety officer
R/T	Real time
RTC	Real-time commands
RUPT	Interrupt
RZ	Return to zero
SA	Signal analyzer assembly
SBASI	Single bridgewire Apollo standard initiator
SC	Spacecraft
SCE	Signal conditioning equipment
SCI	Scientific
SCIN	Scimitar-notch
SCT	Scanning telescope
SCO	Sub-carrier oscillator
SCS	Stabilization and control system
SEC	Secondary
SECO	SIVB engine cutoff
SECS	Sequential events control system
SEL	Select
SENS	Sensitivity
SEP	Separation
SEQ	Sequencer/sequential
SIG	Signal

SIM	Simplex
SLA	Spacecraft lunar module adapter
SLOS	Star line of sight
SM	Service module
SMJC	Service module jettison controller
SMRD	Spin motor rotation detector
SNSR	Sensor
SOV	Shutoff valve
SPEC	Specification
SPLH	Seat pin lock handle
SPS	Service propulsion system/ sample per second
SQ	Square
SSA	Space suit assembly
SSB	Single side-band
S/S	Samples per second
STA	Station
STAB	Stabilization
STBY	Standby
STD	Standard
SU	Separation ullage
SUP	Supply
SW	Switch
SXT	Sextant
SYNC	Synchronize
SYS	System
TB	Talkback
TBD	To be determined
TC	Translation control
TELCOM (T/C)	Telecommunications
TEC	Transearth coast
TEI	Transearth injection
TEMP	Temperature
TFF	Time of freefall
TFL	Time-from-launch
THC	Translation hand control
TIG	Time of ignition
TJM	Tower jettison motor
TK	Tank
TLC	Translunar coast
TLI	Translunar injection
TLM	Telemetry or telemetered
TMG	Thermal meteoroid garment
TPAC	Telescope Precision Angle Counter
TPF	Transfer phase final
TPI	Terminal phase initiation
T/R	Transmit/receive
TRGT	Target
TRNFR	Transfer
TTE	Time-to-event
TTINT	Time to intercept
TV	Television
TVC	Thrust vector control
TVSA	Thrust vector position servo amplifier
TWR	Tower
TWT	Traveling wave tube
UCD	Urine collection device
UDL	Up-data link
UDMH	Unsymmetrical dimethyl hydrazine (fuel)
UHF	Ultra-high frequency
ULL	Ullage
UNBAL	Unbalance
UPTL	Up-link telemetry
USBE	Unified S-band equipment
USBS	Unified S-band system
V	Velocity
VABD	Van Allen belt dosimeter
VAC	Vacuum/volts alternating current
Vc	Circular velocity
VCO	Voltage control oscillator
VDC	Volts direct current
VHF	Very-high frequency
VLV	Valve
VM	Velocity measured
Vo	Initial velocity
VOX	Voice-operated relay/ voice-operated transmission
W/G	Water-glycol
WMS	Waste management system
XCVR	Transceiver
XDUCER	Transducer
XFMR	Transformer
XLATION	Translation
XLUNAR	Translunar
XMTR	Transmitter
XPNDR (XPONDER)	Transponder

ZN	Zinc
ΔP	Differential pressure
ΔV	Differential velocity
$\emptyset$	Roll axis designation/phase
θ	Pitch axis designation
ψ	Yaw axis designation
α	Entry pitch attitude
γ	Angle between local horizontal and velocity vector

ALPHABETICAL INDEX

The following index consists of all paragraphs. They are arranged in alphabetical order and location paragraph numbers are given. This index includes material from sections 1 through 3 only.