

APPENDIX A

ABBREVIATIONS AND SYMBOLS

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

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COI	Contingency orbit insertion	E	Elevation angle
COMM	Communications	ECA	Electronic control assembly
COMP	Compressor, computing		
COND	Condenser/conditioner	EC&L	Error counter and logic
CONT	Control	ECG	Electrocardiograph
CONTR	Control	ECO	Engine combustion/engine cutoff
CO2	Carbon dioxide		
CPC	Cold plate clamp	ECS	Environmental control system
cps	Cycles per second		
CRYO	Cryogenic	ECU	Environmental control unit
CSC	Cosecant computing amplifier	EDA	Electronic display assembly
CSI	Coelliptic sequence initiation	EDS	Emergency detection system
CSM	Command and service module	Eig	Voltage-inner gimbal
CSS	Computer subsystem	EL	Electroluminescent
CTE	Central timing equipment	ELEC	Electronics
CTS	Computer test set	ELS	Earth landing subsystem
CW	Clockwise/continuous wave	ELSC	Earth landing sequence controller
\overline{CW}	Not clockwise	EMER	Emergency
C/W	Caution and warning	Emg	Voltage-middle gimbal
CWG	Constant wear garment	EMS	Entry monitor system
C&WS	Caution and warning system	EMU	Extravehicular mobility unit
		ENC	Encode
DA	Detector assembly	ENG	Engine
D/A	Digital-to-analog	ENTR	Enter
DAC	Digital to analog converter	Eog	Voltage-outer gimbal
DAP	Digital auto pilot	EOS	Emergency oxygen system
db	Decibel	EPS	Electrical power subsystem
DB	Deadband	EQUIP	Equipment
DC	Direct current	ERR	Error
D&C	Displays and controls	ESS	Essential
DCT	Docked configuration transfer	EV	Extravehicular
D&CT	Docking and crew transfer	EVT	Extravehicular transfer
DDP	Data distribution panel	EVA	Extravehicular activities
DEA	Display electronic assembly	EVAP	Evaporator
DEC	Decrease	EVCT	Extravehicular crew transfer
DECR	Decrease	E Visor	Extravehicular visor assembly
DEG	Degree		
DEM0D	Demodulate	EXCH	Exchanger
DET	Digital event timer/detector	EXH	Exhaust
DISCH	Discharge	EXT	Extension
DLH	Docking lock handle	EXTD	Extended
DN	Down		
DPST	Double-pole single-throw	FL	Flash
DRG	Digital ranging generator	FC (F/C)	Fuel cell
DS	Docking subsystem	FCD	Fecal containment system
DSE	Data storage equipment	FCSO	Flight Crew Support
DSIF	Deep Space Instrumentation Facility		Division (MSC)
		FCSM	Flight combustion stability monitor
DSKY	Display and keyboard		
DU	Direct ullage		
DUP	Duplex		

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

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

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

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

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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

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