

Instrumentation Laboratory
Massachusetts Institute of Technology
Cambridge 42, Massachusetts



APOLLO PROJECT MEMO NO. 1373

To: Apollo Staff
From: J. L. Nevins
Subject: CM/LEM Control and Display Nomenclature

Date: 19 October 1965

Reference: NAA/GAEC/MIT ICD No. MH01-05174-414
Nomenclature, Markings and Color
(CM/LEM Control and Display Standardization)

The enclosed list of abbreviations, acronyms, and symbols have been agreed to by NAA, GAEC, and MIT for use in the CM and LEM vehicles. The list has been formalized into section 3.3.2.3 of the referenced ICD. For completeness the selection criteria (section 3.3.1.1 of the referenced ICD) is repeated here.

REVISIONS A

- 3.3 Interface Design
- 3.3.1 Nomenclature
- 3.3.1.1 Selection Criteria

The following criteria shall be used to determine the selection of abbreviations, acronyms and symbols:

- a. Abbreviations, acronyms and symbols shall be used in the CM and LEM only when space limitations prevent the use of the full word or words desired or when use of the full word would result in unwanted clutter of the panel.
- b. When abbreviations, acronyms or symbols are required in both vehicles the identical abbreviated marking for functionally equivalent controls and displays shall be employed.
- c. MIL-STD-128 abbreviations shall be used where mutually considered appropriate.
- d. The abbreviations, acronyms and symbols presented in 3.3.1.2 are currently required for either the CM or the LEM and are considered mutually acceptable for use in both vehicles.

3.3.1.2 List of Abbreviations, Acronyms and Symbols

<u>Abbreviation Meaning</u>	<u>Abbreviation</u>
Abort Electronics Assembly	AEA
Abort Guidance System	AGS
Abort Programmer Assembly	APA
Accelerometer, Accelerate	ACCEL

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

**NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA**

CODE IDENT NO.
03953

SIZE
A

MH01-05174-414

SHEET 7

REVISIONS A

Accumulate, Accumulator	ACCUM
Acknowledge	ACK
A&C Cluster of the RCS engines controlling roll	A/C ROLL
Acquire	ACQ
Activity	ACTY
Adapter	ADPT
Alarm	ALM
Alignment Optical Telescope	AOT
Alignment Progress Indicator	API
Alternating Current	AC
Altitude	ALT
Altitude and Altitude Rate	ALT/ALT RT
Amperes	AMPS
Amplifier	AMPL
Amplitude Modulation	AM
And, Per	/
Angle of Attack	AOA
Annunciator	ANUN
Antenna	ANT
Armed	ARM
Ascent	ASC
Assembly	ASSY

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

4401-05174-414

SHEET 8

REVISIONS A

Attitude	ATT
Attitude Gyro Accelerometer Package	AGAP
Attitude Reference Assembly	ARA
Automatic	AUTO
Automatic Gain Control	AGC
Auxiliary	AUX
Azimuth	AZ
Back-up	BU
B&D Cluster of the RCS engines controlling roll	B/D ROLL
Balanced	BAL
Barometric, Barometer	BARO
Battery	BAT
Beacon	BCN
Bearing	BRG
Bio-Medical	BICMED
Blower	BLWR
Body Mounted Attitude Gyro	BMAG
Booster	BSTR
Booster Engine Cut Off	BECO
Brightness, Bright	BRT
Bus	BUS

E.O. 425057

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

MH01-05174-434

03953

A

SHEET 9

REVISIONS A

Cabin	CAB
Camera	CAMR
Carbon Dioxide	CO2
Carbon Dioxide Partial Pressure High (C/W only)	CO2 PP
Caution	CAUT
Caution and Warning	C/W
Center of Gravity	CG
Centerline	CL
Central Timing Equipment	CTE
Chamber Pressure	P _c
Channel	CHAN
Charge	CHG
Charger	CHGR
Circuit	CKT
Circuit Breaker	CKT BKR
Circulation, Circulator	CIR
Clear	CLR
Coarse	COARS
Command	CMD
Command Module	CM
Command Module Guidance Computer	CMC
Command Module - Service Module	CSM
Command Module & Service Module Separate	CM/SM SEP

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET 10

REVISIONS A

Commander	CDR
Communications	COMM
Comparator	COMP
Compressor	COMPR
Computer	COMPTR
Computer Activity	COMP ACTY**
Computer Display and Keyboard	DSKY
Condenser	COND
Conditioner	CONDR
Continuous	CONTIN
Control	CONT
Counter	CTR
Couple	CPL
Coupling Data Unit	CDU
Critical	CRIT
Crossfeed	CRSFD
Cryogenics	CRYO
Crystal	XTAL
Current	CUR
Cycles per Second	CPS
Data Storage Equipment	DSE
Decimal	DEC

** for DSKY Only (Required per GCA 153-0006)

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET 11

REVISIONS A

Commander	CDR
Communications	COMM
Comparator	COMP
Compressor	COMPR
Computer	CMPTR
Computer Activity	COMP ACTY**
Computer Display and Keyboard	DSKY
Condenser	COND
Conditioner	CONDR
Continuous	CONTIN
Control	CONT
Counter	CTR
Couple	CPL
Coupling Data Unit	CDU
Critical	CRIT
Crossfeed	CRSFD
Cryogenics	CRYO
Crystal	XTAL
Current	CUR
Cycles per Second	CPS
Data Storage Equipment	DSE
Decimal	DEC

** for DSKY Only (Required per GCA 153-0006)

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

03953

SIZE

A

MH01-05176-416

SHEET 11

REVISIONS

A

Decrease	DECR
Degree(s)	° or DEG*
Delta	△
Descent	DES
Descent Engine Control Assembly	DECA
Detection, Detector	DET
Direct	DIR
Direct Current	DC
Discharge	DISCH
Discone Antenna	DIS ANT
Display(s) and Controls(s)	D/C
Distribution	DISTR
Double Precision	DP
Down	DN
Drive	DR
Earth Landing System	ELS
Earth Orbit Rendezvous	EOR
Electrical	ELEC
Electrical Power System	EPS
Electroluminescence	EL
Electronic Control Assembly	ECA

* The ° symbol shall be used only in conjunction with F or C to denote temperature.

N - 110 - N59

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET 12

REVISIONS A

Elevation	ELEV
Emergency	EMER
Emergency Detection System	EDS
Encoder	ENCDR
Engine	ENG
Enter	ENTR
Entry Monitor System	EMS
Environmental	ENVIR
Environmental Control System	ECS
Error	ERR
Escape	ESC
Essential	ESS
Evaporator	EVAP
Exhaust	EXH
Extend	EXTD
Exterior, External	EXT
Extravehicular Communications	EVC
Fahrenheit	*F
Feet	FT
Feet per Second	FPS
Flight	FLT
Flight Director Attitude Indicator	FDAI

M - 110 - NSB

E.O. 425157

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC. SPACE and INFORMATION SYSTEMS DIVISION 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA		
CODE IDENT NO.	SIZE	
03953	A	11 01-0121-434
		SHEET 13

M - 110 - 1158

REVISIONS A

Flotation	FLOAT
Forward	FWD
Frequency	FREQ
Frequency Modulation	FM
Front	F
Fuel Cell	FC
Generator	GEN
Gimbal	GMBL
Gimbal Drive Assembly	GDA
Gimbal Position Indicator	GPI
Glycol	GLY
Greenwich Mean Time	GMT
Ground	GRD
Guidance	GUID
Guidance and Navigation	G/N
Gyro Display Coupler	GDC
Gyroscope	GYRO
Heater	HTR
Heat Shield	HS
Helium	He
High	HI
High Frequency	HF
High Gain	HI GAIN

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.
 03953

SIZE
 A

MH01-0574-414

SHEET 14

REVISIONS A

Horizon, Horizontal	HORJZ
Hour	HR
Hydrogen	H ₂
Hydrogen Ion Concentration High	pH HI
Impulse	IMP
Increase	INCR
Indicator	IND
Inertial	INRTL
Inertial Coupling Data Unit	ICDU
Inertial Measurement Unit	IMU
Inertial Rate Integrating Gyro	IRIG
Inertial Subsystem	ISS
Inflight	INFLT
Infrared	IR
Initiate, Initiator	INIT
Injection, Injector	INJ
Instrument(s), Instrumentation	INST
Instrument Unit	IU
Integral	INTG.
Intercommunications	INTERCOM
Interphone Control Station	ICS
Interrupt	RIPT
Inverter	INV

M - 110 - NSS

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12814 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

MH01-05174-414

02983

A

SHEET 15

REVISIONS A

Isolate, Isolation	ISOL
Jettison	JETT
Landing	LDG
Landmark	LDMK
Lateral	LAT
Launch Escape System	LES
Launch Vehicle	LV
Left	L
Left Rear	LR
LEM Guidance Computer	LGC
LEM Mission Programmer	LMP
Light(s)	LT
Lighting	LTG
Line of Sight	LOS
Liquid	LIQ
Lithium Hydroxide	LiOH
Local	LCL
Long Eye Relief (Optics)	LER
Low	LO
Lower Equipment Bay	LEB
Lunar Excursion Module	LEM
Lunar Orbit Injection	LOI
Lunar Orbit Rendezvous	LOR

M - 110 - NSB

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
 SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MM01-05174-414

SHEET 16

REVISIONS

A

Magnetic	MAG
Main	MN
Management	MGMT
Manifold	MANF
Manned Space Flight Network	MSPN
Manual	MAN
Mark	MK
Marker	MKR
Master	MA
Maximum	MAX
Medium	MED
Mercury	Hg
Millimeters	MM
Milliradians	MRAD
Milliroentgens per Hour	MR/HR
Minimum, Minutes	MIN
Mission Control Programmer	MCP
Mission Event Sequence Controller	MESC
Monitor	MON
Motor(s)	MOT
Nautical Mile(s)	NM
Navigation, Navigator	NAV

N - 110 - NSB

E.O. 12812-1

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
 SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

NSA-05174-414

SHEET 12

REVISIONS A

Negative	NEG
Neutral	NEUT
Nitrogen	N ₂
No Attitude Reference**	NO ATT
Nominal	NOM
Nonessential	NONESS
Normal	NORM
No Separation	NO SEP
Number	#
Numeral, Numeric	NUM
Occultation	OCCUL
Octal	OCT
Operate	OPR
Optical	OPT
Optical Coupling Data Unit	OCDU
Optical Subsystem	OSS
Oscillator	OSC
Outer Gimbal Axis	OGA
Outlet	OUT
Overload	OVLD
Override	OVRD

** For DSKY Only (Required per CGA 153-0006)

M - 110 - N58

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05176-414

SHEET 18

REVISIONS A

Oxidizer	OXID
Oxygen	O ₂
Package	PKG
Partial	PART
Partial Pressure of Carbon Dioxide (except C/W)	PART PRESS CO ₂
Per, And	/
Percent	%
Phase	φ
Phase Modulation	PM
Portable Life Support System	PLSS
Position	POS
Potable	POT
Pound(s)	LB
Pounds per Square Inch	PSI
Pounds per Square Inch Absolute	PSIA
Power	PWR
Power and Servo Assembly	PSA
Premodulation Processor	PMP
Pressure	PRESS
Pressure Differential	ΔP
Primary	PRIM
Primary Guidance and Navigation System	PGNS

M - 110 - NS8

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05176-634

SHEET 19

REVISIONS A

Proceed, Procedure	PRO
Program	PROG
Propellant	PRPLNT
Propellant Utilization	PU
Propulsion	PROPUL
Pulse Amplitude Modulation	PAM
Pulse Code Modulation	PCM
Pulse Code Modulation Timing Electronics	PCMTE
Pulsed Integrating Pendulus Accelerometer	PIPA
Pushbutton	PB
Push to Talk	PTT
Pyrotechnic	PYRO
Quadrant(s)	QUAD
Quantity	QTY
Radar	RDR
Radiator	RAD
Range, Ranging	RNG
Range/Range Rate	RNG/RNG RT
Rate	RT
Rate Dampening	RTD
Reactant	REAC
Reaction Control System	RCS

M - 110 - NSB

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

**NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA**

CODE IDENT NO. SIZE

03953

A

MH01-05174-414

SHEET 20

REVISIONS A

Receive	RCV
Receiver	RCVR
Recognition	RECOG
Record	RCD
Recorder	RCDR
Recovery	RECY
Referonce	REF
Regulator	REG
Relay	RLY
Release	REL
Rendezvous	RNDZ
Reset	RSET
Resolve	RSLV
Retract, Retractable	RETR
Retro-Rocket	RETRO
Reverse	REV
Right	R
Right Rear	RR
Rotary, Rotate	ROT
Saturn I, II	SI, SII
Saturn IV B	SIVB
Scanning Telescope	SCT
Scientific	SCI

M - 110 - 158

E.O. 425.57

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFICS TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
 SPACE AND INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

NR01-05174-414

SHEET 21

REVISIONS A

Second, Secondary	SEC
Select, Selector	SEL
Sensitivity	SENS
Sensor	SNSR
Separate, Separator	SEP
Sequence	SEQ
Service Module	SM
Service Propulsion System	SPS
Servomechanism	SERVO
Set, Setting	SET
Sextant	SXT
Shield	SHLD
Shut-off Valve	SOV
Signal	SIG
Signal Conditioning Equipment	SCE
Sub Carrier Oscillator	SCO
Single Sideband	SSB
Solenoid	SOL
Spacecraft	SC
Stabilization	STAB
Stabilization and Control System	SCS
Standby	STBY
Steerable, Steering	STEER

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET ??

REVISIONS A

Stowage	STOW
Supercritical Oxygen	SOX
Supply	SUP
Survival	SURVL
Switch	SW
Synchronize, Synchronizer, Synchronizing	SYNC
System	SYS
System Engineer	SE
Tank	TK
Telecommunications	TEL.COM
Telemeter, Telemetry	TLM
Teleprinter	TPR
Telescope	TELE
Television	TV
Temperature	TEMP
Thrust	THR
Thrust Vector Control	TVC
Timing Electronics	TE
Tolerance	TOL
Total	TOT
Tower	TWR
Trajectory	TRAJ
Transceiver	XOVR
Transfer	TRNFR

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED

NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
 12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET 22

REVISIONS A

Translation	TRANSL
Translunar	XLUNAR
Transmit	XMIT
Transmit and Receive	T/R
Transmitter	XMTR
Transponder	XPNDR
Ultra High Frequency	UHF
Up Telemetry	UP TLM
Valve	VLV
Variable	VAR
Vehicle	VEH
Velocity	VEL
Velocity Change	Δ V
Ventilate, Ventilator	VENT
Vertical	VERT
Very High Frequency	VHF
Viewer	VWR
Voice Operated Transmitter	VOX
Volt, Voltage	VOLT
Volume	VOL
Warning	WARN
Water	H ₂ O

M - 110 - 158

INTERFACE CONTROL DOCUMENT

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED.

**NORTH AMERICAN AVIATION, INC.
SPACE and INFORMATION SYSTEMS DIVISION
12214 LAKEWOOD BLVD., DOWNEY, CALIFORNIA**

CODE IDENT NO.

SIZE

03953

A

MH01-05174-414

SHEET 24