

Reference Data

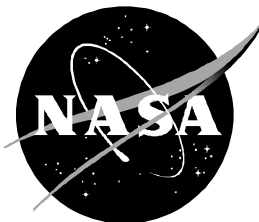
STS-109 Flight Supplement

**Mission Operations Directorate
Operations Division**

**Final
February 11, 2002**

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas



United Space Alliance

MISSION OPERATIONS DIRECTORATE

**REFERENCE DATA
STS-109 FLIGHT SUPPLEMENT**

FINAL
February 11, 2002

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STS-109 FLIGHT SUPPLEMENT

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LOCKER STOWAGE

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LOCKER

LOCKER

STS-109 FLT DECK STOWAGE

C4A

FDF

C4F

FDF

R3A

FDF

R3F

FDF

L10 UPPER

Adapter, Mini-Cam/AVIU
AVIU (2)

Batt Charger, DCS

Cables

- ATU Recorder, 9.5 ft
- DCS 7V DC Pwr Adapter, 15 ft
- DCS 28V DC Pwr Adapter, 6 ft
- Digital CC Vid/Pwr, 15 ft
- Mini-Cam Extension, 13 ft
- Mini-Cam On-Orbit, 10 ft
- Stereo/Mono Adapter
- VIU/CM-CC Video, 15 ft

Tape, Digital Video (144)

VPU Plug

L10 LOWER

Adapter, DC Pwr (2)

Cables

- BNC-RCA Adapter
- BNC Straight Adapter (3)
- Ethernet Terminator (2)
- OCA I/F, 25 ft
- PCMMU, 24 ft
- RS-422 Adapter (3)

Camera, DCS

Card, PCMCIA (4)

Drive, Removable Floppy

PGSC (2)

L11 UPPER

SSP 3

L11 LOWER

PGSC (2)

Cables

- DC Pwr, 25 ft
- HST PDIP Y

L12

PDIP

SSP 1/SSP 2

R12 UPPER

VPU

R12 LOWER

Batt, Li-ION
Board, OCA

Cables

- Ethernet, 3 ft
- Ethernet, 25 ft
- Fuel Cell PCMMU Data (2)
- PGSC Pwr, 25 ft
- PGSC Pwr Adapter, 25 ft
- Teleconference Camera Video Pwr (2)
- Video IN/OUT (2)
- VIU/CM-CC Video Cable, 15 ft
- VLHS to VTS I/F

PGSC, STS6 - RPOP

Pwr Supply, DC (3)

Recorder, V10

STS-109 FLT DECK STOWAGE (Cont)

A16

Bag, 35mm Camera
Body Cap
Bumper Ring
Cable, Shutter Release Extension
Cable Assy, Shutter Release
Camera, 35mm/Film
Film, 35mm (27)
Flash, 35mm (4)
Lens
16mm
17-35mm
28mm
28-70mm
50mm
180mm
Teleconverter, 2X
Bag, 70mm Camera
Cable, Hasselblad RS 232
Camera, 70mm/Film Mag
Film, 35mm (27)
Filter, Wratten (2)
Flash Cord
Kit, Lens/Window Cleaning

A16

(Cont)
Bag, 70mm Camera (Cont)
Lens, Hasselblad
50mm
110mm
250mm
Manual Winder Assy (2)
Remote (2)
Bag, General Purpose
Batts
544 (2)
AA (70)
Button
Binoculars
8x20
20x60S
Bracket, Multiuse (3)
Bracket Base, Multiuse
Bracket Clamp, Multiuse (3)
Camera Mounts
Loc-Line Adapter Plate
Loc-Line Flex Bracket
FRED, Leg Bar

A17

INCUSHION
Cameras
35mm/Film
70mm/Film Mag
Film, 35mm (3)
Film Mag, 70mm (5)
Lens
350mm
400mm
Bag, L1A Camcorder
Adapters
BNC-RCA Phono (2)
BNC-T (2)
RCA-BNC (2)
AVIU
Batts
Camcorder Mic (3)
Li-ION (8)
Batt Charger
Bracket, Mini-Cam HUD
Cables
Digital CC Vid/Pwr, 15 ft
IEEE 1374 Firewire
PD100 A/V Adapter
RCA-RCA (2)
VIU/CM-CC Video, 15 ft (2)
VPU Patch
Y-C

STS-109 FLT DECK STOWAGE (Cont)

A17

(Cont)

Bag, L1A Camcorder (Cont)

Camcorder, L1A/Tape

Camera, Mini-Cam (2)

Headphones

Lens

6mm Mini-Cam

12mm Mini-Cam

PD100 Wide Angle

Microphone

Remote

Tape, Digital Video (36)

Tie Wrap, Mini-Cam

Pry Bar

FS 1-4

REF/109/FIN

STS-109 MIDDECK STOWAGE

FORWARD LOCKERS

MF14E

Food, Menu
FRED

MF14G

Clothing, CDR
Clothing, CDR

MF14H

Bags
 Helmet Stowage (2)
 Inflight Stowage, Restraint (10)
 Jettison Stowage (10)
Bungee, Adjustable (7)
Canister, WCS (Coffee Can)
Covers
 HUD (4)
 Parachute (7)
Hoses
 Personal Hygiene
 WCS Canister

MF14H

(Cont)
Kits
 Comm
 Cables
 Comm, 4 ft
 Comm, 14 ft
 Mic, Handheld (3)
 VLHS (2)
 Saliva
 Mirror (2)
 O2 Bleed Orifice
 Pip Pin (12)
 Pip Pin, Escape Pole (Spare)
 Switch Guard, Computer
 Tape
 Gray, 1 in
 Gray, 2 in
 Ziploc, 8 in (20)
 Ziploc, 12 in (8)

MF14K

Air Bottles
Breaker Bar, 3/8 in
Breakout Box
Filter, Waste Water Dump
Kit, RMS D&C
Turnbuckles

MF14M

FDF | Bag, WVS

MF14O

Food, Menu
Food, Menu

MF28E

Food, Menu
Food, Menu

MF28G

Clothing, PLT
Clothing, PLT

STS-109 MIDDECK STOWAGE (Cont)

FORWARD LOCKERS (Cont)

MF28H

Altimeter
Dosimeter
Kit, Med
 Bag, Saline Supply (2)
 Bioinstrumentation System
 Cable, Biomed (2)
 Container, Sharps
 Kits
 Electrode Attachment
 Operational Bioinstrumentation
 Restraint (4)
 Resuscitator
 Subpacks
 Airway
 Drug
 EENT
 IV Admin
 Trauma

MF28K

Paper Tray, Color Printer
Cartridge, ACTEX (2)
Filter, Microbial
Filter Hose Assy
Hose, ACTEX
Microbial Check Valve

MF28M

Gloves, Phase VI (4)
Oxone Hose Segment (11)

MF28O

Kit Assy, Saliva (5)
Printer, Color

MF43C/E

CCC (10)
LiOH

MF43G

Clothing, MS1
Clothing, MS1

MF43H

IFM Tools

Top Tray

Bag, GPC Grounding Strap
 Crowfoot, RCRS
 Tether, ASW (2)
Batt, 9V
Bushing, RSK, Spare
Cable, CWS Contingency Pwr (2)
Connector, IFM Jumper
Dynaband
Flashlight Bulbs (12)
Kits
 HDRR Repair
 Velcro (2)
Multimeter/Temp Probe
Patch Kit Assy
 Duxseal
 Foam Applicator Valve (2)
 Lubricant
PBI Braided Cord
Pin Kit Assy
Screwdriver, Electric
 Batt, Spare (4)
 Driver, Allen, 5/32 in
Socket Set, Metric
Tape, Aluminum

STS-109 MIDDECK STOWAGE (Cont)

FORWARD LOCKERS (Cont)

MF43H

(Cont)

IFM Tools (Cont)

Top Tray (Cont)

Tape, Gray, 1 in
Tape, Gray, 2 in (2)
Tape, Kapton
Tie Wraps, 6 in (50)
Tool Table Cloth
Velcro Straps (50)

Second Tray

ACCU Bypass Connector
File Sets (2)
Hammer, Deadblow
Hex Drive, 3/16 in (Locker Tool) (2)
Inspection Mirror
Mechanical Fingers
Pinch Bar
Pliers
 Connector
 Vise Grip
Punch, 8 in
Wrenches
 Adjustable, 10 in
 Connector Strap
 Robbins

MF43H

(Cont)

IFM Tools (Cont)

Third Tray

Adapter, 3/8 in to 1/4 in
Adapter, 1/4 in to 3/8 in (2)
Blade Kit
Drivers
 Ball Hex Head (2)
 Hex Head (6)
 Phillips (3)
Driver Handle, 1/4 in
Driver Handle, 3/8 in
Extension 1/4-in Drive, 4 in
Extension 1/4-in Drive, 6 in
Extension 1/4-in Drive, 10 in
Hacksaw
Pliers
 Lg Needlenose
 Sm Needlenose
Seat Adjustment Tool
Sockets
 1/4-in Deepwell (5)
 1/4-in Standard (6)
 3/8-in Standard (9)
Torque Bits (5)

MF43H

(Cont)

IFM Tools (Cont)

Third Tray (Cont)

Universal Joint, 3/16 in
Wire Cutters
Wrenches
 Ratchet
 Torque, 1/4 in

Bottom Tray

cb Override Devices (3)
Driver, Torque Hand (3)
Flexible Hand Saw (Bone)
Forceps (TAGS Tool)
Screwdrivers
 Jewelers Set
 Long
 Short
 Phillips (2)
Switch Guards (5)
Tape Measure
Wire Spool
Wrenches
 Adjustable, 4 in
 Combination (9)
 L-Shaped Hex

STS-109 MIDDECK STOWAGE (Cont)

FORWARD LOCKERS (Cont)

MF43K

Bag, PCU Connector (4)
Batt, EMU
Caddy, VIK
Connector Strap, SA2 (3)
Kit, Voltage Improvement
Tether, Retractable Equip (4)

MF43M

Batt, NIMH (4)
Camera, DCS
COAS
Diffuser
Film Mag, 70mm (4)
Light Shields (2)
PCMCIA (5)
Photo Floodlight

MF57A (VOL A)

Food, Pantry
Accessories
Kit, Re-Entry
Trash Bag, Utility (39)
Utensils

MF57C

Bags
HST Tools
Small Trash (2)
Batt, PGT (2)
Cable, EHIP PGT (3)
Compound Cutter
Connector Tools
Circular
ORU Small
Harness, PGT RS-422

MF57E

Food, Fresh
Food, Fresh

MF57G

Clothing, MS2
Clothing, MS2

MF57H

FDf

MF57K

Food, Menu
Food, Menu

MF57M

Clothing, MS4
Clothing, MS4

MF71C

Film Mag, 70mm (20)
Shuttle CSA-CP

MF71E

Food, Menu
Food, Menu

MF71G

Clothing, MS3
Clothing, MS3

STS-109 MIDDECK STOWAGE (Cont)

FORWARD LOCKERS (Cont)

MF71H

Applicator Tool, HST Lubricant (2)
Connector Tool, High Torque (3)
Fuse Plug, PDV
Pwr Tool, Pistol Grip
Ratchet, 3/8-in Drive (2)

MF71K – FRONT

Cable, RS-232 Pwr/Data Y
Hand Controller, PILOT
Tie Wrap/Bungee Assy

MF71K – REAR

Crew Support

MF71M

Clothing, MS5
Clothing, MS5

MF71O

Batt, AA
Batt Cap Fuse Assy
Batt Pack, BPSMU (2)
BPSMU
Cables
 BNC to BNC
 BPSMU to CCU
 LIDAR I/F (2)
 PGSC Pwr, 6 ft
 SSV to PDIP (2)
Kit, SSV Fuse
LIDAR (2)
 Nightscope
SSV Compression Encoder
Transformer, Bal/Unbal

STS-109 MIDDECK STOWAGE (Cont)

AFT LOCKERS

MA9D

MAGR

MA9F

Food, Menu

Food, Menu

MA9G

Adapter, Drop Proof Tether (2)

Bag, ORU Transfer

Caddy, Tool

Driver, Ball

Mirror

Socket (3)

Socket Extension (2)

Tether (2)

Tool Boards, HST (2)

Torque Limiter (2)

Wrench, Allen (2)

MA9J

Chargers

EHIP

EMU (2)

REBA (2)

MA9L – FRONT

Bag, HST Camera

Batt (50)

Bracket, EVA Camera Long

Camera, 35mm EVA (2)

Film, 35mm (55)

Lens

28mm (2)

35mm

80–200mm

Viewfinder (2)

MA9L – REAR

Bag, HST Camcorder

AVIU

Cable

ATU Recorder

A/V Adapter

Balanced Video

CC Video Pwr

Stereo/Mono Adapter

VIU/CM–CC Video, 15 ft

Camcorder, PD100

Tape, Digital CC (180)

Transformer, Bal/Unbal

MA9N

PHK (5)

Bracket, Multiuse (2)

Kit, Waveoff Re–Entry

PHK (2)

Restraint, Foot Loop (Spare) (6)

Trash Bag, WMS (Spare)

Chem Light, Red (28)

Fiberscope Light Source

Kits

Contaminant Cleanup/Eyewash

Video Fiberscope

Restraint, Seat (Spare) (2)

FS 1–10

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STS-109 MIDDECK STOWAGE (Cont)

AFT LOCKERS

MA16D/F

LiOH (9)

MA16G

Caddy

Dual Tether
Single Tether
Wire Tie

Crew Hook Lock Assy (2)

Crew Hook Lock Lanyard (2)

Sockets

Hex, 6-in Wobble
Hex Adjustable Long
Hex Rigid, 6 in
Spring, 4 in

Standard McCaddy (2)

Tethers

Adjustable Equip, 34 in (3)
Adjustable Equip, 80 in
Adjustable Equip, Sm-Sm (4)
Adjustable Fuse (2)
ERCM (2)
Retractable Equip (2)
Retractable Equip, Sm-Lg (4)
Retractable Equip, Sm-Sm (3)
Retractable Equip, Sm-Sm Ret (6)

MA16J

Batt, PGT (5)

Cable, PGT/EHIP Y-Pwr Charger

Connector, PGT Batt Jumper (2)

PGT (2)

MA16L

Batt, PRT (3)

Controller, PRT

Umbilical, 6 ft

Wrench, PRT

MA16N

Key Strap

Kit, Connector Cleaner

Manual Door Stay

Modified Gimbal Assy (2)

MWS (2)

STS-109 MIDDECK STOWAGE (Cont)

WASTE MGMT COMPARTMENT

Adapter, Urine QD
Bag, Emesis (10)
Prefilter, Conical (20)
Sanitation Agent (2)
Scraper Tool
Towels (39)
Urinal Funnel, Female (Round) (2)
Urinal Funnel, Male (6)
Washcloth (40)
WCS Tool
Bag, Elbow (16)
Clothing, 1st Day (7)
Trash Bag, Aux Wet
Dry Wipes (9 pkg)
Gloves (2 pkg)
Toilet Tissue (8 pkg)
Trash Bag, Coffee Can (10 pkg)
Wet Washes (10 pkg)

VOL B (MA4D)

Bags
 Elbow(9)
 Emesis (10)
Gloves (1 pkg)
Gloves, Shoulder Length
G-Suit (7)

VOL B (MA4D)

(Cont)
Neck Ring Pad
Prefilter, Conical (20)
Toilet Tissue (2 pkg)
Towels (40)
Washcloth (114)
Wet Washes (2 pkg)
Wet Wipes (9 pkg)

VOL 3B (MA73J)

Adapter, Bends Treatment (BTA)
Batts
 AA (36)
 AAA (14)
Cabin Air Cleaner
Cable, LCD Monitor
Calculator (2)
Dosimeter, Audio
Microcassette (28)
Monitor, LCD
Quick Don Mask (7)
Recorder, Microcassette (7)
Spotlight

VOL D (MD52C)

Batt
 EMU (2)
 REBA (4)
Blanket, MD Contingency
CCC (2)
Cheater Bar
Kits
 Leg Sizing (2)
 Thigh Sizing
Leg Assy (3)
LiOH (4)
MFR Handhold
SA2 Bistem Strap (2)

VOL E (MD76C)

OFK

VOL F (MD76M)

Wet Trash
Bag, Clothing
 CDR
 MS1
 MS2
 MS3
 MS5
 PLT
Kit, EMU Servicing

STS-109 MIDDECK STOWAGE (Cont)

VOL G (MD80R)

Bag, Apollo Fecal (40)
CUCD, Male (54)
CWC (2)
Filter, Odor/Bacteria
Gloves (1 pkg)
Pull-Ups (24)
Wet Wipes (3 pkg)
Ziploc Bag, 13x18 (8)

LiOH VOL (MD52M)

Canisters
 ATCO
 LiOH (29)
Dry Wipes (8 pkg)
Trash Bag, Coffee Can (8 pkg)
Wet Washes (12 pkg)

MD73L

No Locker

AIRLOCK CEILING

Adapter Plate, Airlock
CCA (2)
EMU, Short
Gloves, Phase VI

AIRLOCK CEILING

(Cont)
Helmet
Kit, Crew Options
LCVG (2)
Lower Torso
Mirror, EMU (2)
Restraint, LTA
Scissors, Tethered

INTERNAL AIRLOCK

PORT
 CCA (2)
 EMU, Short
 Gloves, Phase VI
 Kit, Crew Options
 LCVG (2)
 Lower Torso
 Mirror, EMU (2)
 Baseplate Assy, Modular
 Restraint, LTA
 Scissors, Tethered
 SOP Checkout Fixture
 Tethers
 Equipment, Adjustable
 Equipment, Retractable
 Waist (3)

INTERNAL AIRLOCK

(Cont)
STBD
 CCA
 EMU, Short
 Gloves, Phase VI
 Kit, Crew Options
 LCVG
 Lower Torso
 Mirror, EMU (2)
 Baseplate Assy, Modular
 Restraint, LTA
 Scissors, Tethered
 SOP Checkout Fixture
 Tethers
 Equipment, Adjustable
 Equipment, Retractable
 Waist (2)

A/L FLOOR

Adapter Plate, Airlock
CCA (2)
EMU, Short
Gloves, Phase VI
Helmet
Kit, Crew Options
LCVG

STS-109 MIDDECK STOWAGE (Cont)

A/L FLOOR

(Cont)
Lower Torso
Mirror, EMU (2)
Restraint, LTA
Scissors, Tethered

MD23R (VOL H)

INBOARD

Bag, Airlock Stowage (2)
Bag, In-Suit Drink (8)
Body Seal Closure Tool
EMU Donning Handles (2)
Batt, EHIP (5)
Cable, PGT/EHIP Y-Pwr Charger
Charger, Batt Pack
EMU Helmet Light

OUTBOARD

Bag, Airlock Accessories
Connector, ESCU
Ratchet, 3/8 in w/Socket
Wrench, EVA Adjustable
Bag, Drink (8)
Batt, EHIP (2)
Bulb Assy, Narrow (2)
Cable, PGT/EHIP Y-Pwr Charger
Caddy, General Purpose Tool
Charger, Batt Pack

MD23R (VOL H)

(Cont)

OUTBOARD (Cont)

Cover, MWC Flight
EMU Helmet Light
Kit, Lens/Window Cleaning (2)
Spot Beam (2)

MA12B (WINDOW SHADE BAG)

Bag, Window Shade

Bag, Film Load/Download
Bag, IFM Cont Hose and Cable Kit
Adapter, Yellow/Red
Cables
AC Pwr Transfer, 15 ft
DC Harness, 24 ft (2)
DC Pigtail Connector (2)
Payload Jumper (2)
Clamp (6)
Clamp, Hose (8)
Hoses
1/4 in (6 ft)
3/8 in (6 ft)
Cont Blue/Blue
Cont Red/Red
Cont Yellow/Yellow
CWC Contingency

MA12B (WINDOW SHADE BAG)

(Cont)

Bag, Window Shade (Cont)

Bag, IFM Cont Hose and Cable Kit
(Cont)
Protective Cover Wireway (3)
Water Equipment Assy
Filter, Wand Extender Assy
Galley Needle (Spare) (2)
Purge Device
Separator, Water/Gas (2)
Water Dispenser, Cont

Panel Covers

A8

Fasteners (6)
Lower
Upper

R2

Standoffs (5)
Stiffeners (2)
Tie Down, Elastic
Tie Down, Snap (2)

Shade, Monitor (2)

Window Shades, Ovhd (2)

Desks, PGSC (2)

STS-109 LIGHTWEIGHT MAR

ML60B

ERCA
Kit, Lower Arm (3)

ML60E

Adapter, PCMCIA Ethernet (9)
Card, Tri Port PCMCIA RS-422/MCIU (5)
PCMCIA Card Dual Port (3)
PGSC (4)

ML60J

Cables
AC Extension, 15 ft
AC Extension, 20 ft
AC W
Ethernet, 3 ft
Parallel Data, 25 ft
T-Connector
Cartridge, Ink (2)
Paper, Color Printer (2)
Printer, Color

ML60J

(Cont)
Vacuum Cleaner, DC
Adapter, Hose
Bag, Vacuum (4)
Crevice Tool
Filter Tools
Cabin Fan
DDU
Flex Tool
Hoses
Flex
Suction

ML60M

ERCA
Kit, Lower Arm (3)

STS-109 CONSUMABLES

<u>Item</u>	<u>Location</u>		<u>Total Qty</u>
Contingency Urine/Fecal Collection Devices:			
MAGs	Airlock		18
CUCDs (male)	Vol G (MD80R)		54
Apollo Fecal Bags	Vol G (MD80R)		40
Pull-Ups	Vol G (MD80R)		24
Dry Wipes (45/pkg) (9/cm/day)	Waste Mgmt Compartment	9 pkg	405
	LiOH Vol (MD52M)	8 pkg	360
			765
Elbow Bags	Waste Mgmt Compartment		16
	Vol B (MA4D)		9
			25
Emesis Bags	Waste Mgmt Compartment		10
	Vol B (MA4D)		10
			20
Gloves (50/pkg)	Waste Mgmt Compartment	2 pkg	100
	Vol B (MA4D)	1 pkg	50
	Vol G (MD80R)	1 pkg	50
			200
Gloves, Shoulder Length	Vol B (MA4D)	1 pkg	25
Prefilters, Conical	Waste Mgmt Compartment		20
	Vol B (MA4D)		20
			40
Sanitation Agent	Waste Mgmt Compartment	bottles	2
Toilet Tissue (100/pkg) (12/cm/day)	Waste Mgmt Compartment	8 pkg	800
	Vol B (MA4D)	2 pkg	200
			1000
Towels (1/cm/day)	Waste Mgmt Compartment		39
	Vol B (MA4D)		40
			79

NOTE: The qty/day is based on 7 crewmembers and 11 days

STS-109 CONSUMABLES (Cont)

<u>Item</u>	<u>Location</u>		<u>Total Qty</u>
Trash Bags (Coffee Can Bags) (10/pkg) (2/cm/day)	Waste Mgmt Compartment	10 pkg	100
	LiOH Vol (MD52M)	8 pkg	<u>80</u>
			180
Washcloths (2/cm/day)	Waste Mgmt Compartment		40
	Vol B (MA4D)		<u>114</u>
			154
Wet Washes (36/pkg) (11/cm/day)	Waste Mgmt Compartment	10 pkg	360
	Vol B (MA4D)	2 pkg	72
	LiOH Vol (MD52M)	12 pkg	<u>432</u>
			864
Wet Wipes (64/pkg) (11/cm/day – excluding Vol G)	Galley		100
	Vol B (MA4D)	9 pkg	576
	Vol G (MD80R)	3 pkg	<u>192</u>
			868

NOTE: The qty/day is based on 7 crewmembers and 11 days

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ALPHA-
BETIC

ALPHABETICAL STOWAGE

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REF/109/FIN

**ALPHA-
BETIC**

ALPHABETICAL STOWAGE

ITEM	QTY	LOCATION	NOTES
A			
Accessories		Vol A	MF57A, Pantry Food
Adapter, Bends Treatment (BTA)		Vol 3B	MA73J
Adapter, BNC-RCA Phono	2	A17	L1A Camcorder Bag
Adapter, BNC-T	2	A17	L1A Camcorder Bag
Adapter, DC Pwr	2	L10 Lower	
Adapter, Drop Proof Tether	2	MA9G	
Adapter, Hose		ML60J	LW MAR, DC Vacuum
Adapter, Mini-Cam/AVIU		L10 Upper	
Adapter, PCMCIA Ethernet	9	ML60E	LW MAR
Adapter, RCA-BNC	2	A17	L1A Camcorder Bag
Adapter, Urine QD		WMC	
Adapter, Yellow/Red		MA12B	Window Shade Bag, IFM CHCK Bag
Adapter Plate, Airlock		A/L Ceiling	
		A/L Floor	
Air Bottles		MF14K	
Altimeter		MF28H	
Applicator Tool, HST Lubricant	2	MF71H	
AVIU	2	L10 Upper	
		A17	L1A Camcorder Bag
		MA9L	REAR, HST Camcorder Bag

ITEM	QTY	LOCATION	NOTES
B			
Bag, 35mm Camera		A16	
Bag, 70mm Camera		A16	
Bag, Airlock Accessories		Vol H	MD23R, OUTBOARD
Bag, Airlock Stowage	2	Vol H	MD23R, INBOARD
Bag, Apollo Fecal	40	Vol G	MD80R
Bag, Clothing – CDR		Vol F	MD76M
Bag, Clothing – MS1		Vol F	MD76M
Bag, Clothing – MS2		Vol F	MD76M
Bag, Clothing – MS3		Vol F	MD76M
Bag, Clothing – MS5		Vol F	MD76M
Bag, Clothing – PLT		Vol F	MD76M
Bag, Drink	8	Vol H	MD23R, OUTBOARD
Bag, Elbow	16	WMC	
	9	Vol B	MA4D
Bag, Emesis	10	WMC	
	10	Vol B	MA4D
Bag, Film Load/Download		MA12B	Window Shade Bag
Bag, General Purpose		A16	
Bag, GPC Grounding Strap		MF43H	IFM Tools
Bag, Helmet Stowage	2	MF14H	
Bag, HST Camcorder		MA9L	REAR
Bag, HST Camera		MA9L	FRONT
Bag, HST Tools		MF57C	
Bag, IFM Cont Hose and Cable Kit		MA12B	Window Shade Bag

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
B (Cont)			
Bag, Inflight Stowage, Restraint	10	MF14H	
Bag, In-Suit Drink	8	Vol H	MD23R, INBOARD, A/L Stow Bag
Bag, Jettison Stowage	10	MF14H	
Bag, L1A Camcorder		A17	
Bag, ORU Transfer		MA9G	
Bag, PCU Connector	4	MF43K	
Bag, Saline Supply	2	MF28H	Med Kit
Bag, Small Trash	2	MF57C	
Bag, Vacuum	4	ML60J	LW MAR, DC Vacuum Cleaner
Bag, Window Shade		MA12B	
Bag, WVS		MF14M	
Baseplate Assy, Modular		Internal A/L	PORT
		Internal A/L	STBD
Batt	50	MA9L	FRONT, HST Camera Bag
Batt, 9V		MF43H	IFM Tools
Batt, 544	2	A16	General Purpose Bag
Batt, AA	70	A16	General Purpose Bag
		MF71O	
	36	Vol 3B	MA73J
Batt, AAA	14	Vol 3B	MA73J
Batt, Button		A16	General Purpose Bag
Batt, Camcorder Mic	3	A17	L1A Camcorder Bag
Batt, EHIP	5	MD23R	Vol H, INBOARD
	2	MD23R	Vol H, OUTBOARD

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ITEM	QTY	LOCATION	NOTES
B (Cont)			
Batt, EMU		MF43K	
	2	Vol D	MD52C
Batt, Li-ION		R12 Lower	
	8	A17	L1A Camcorder Bag
Batt, NIMH	4	MF43M	
Batt, PGT	2	MF57C	
	5	MA16J	
Batt, PRT	3	MA16L	
Batt, REBA	4	Vol D	MD52C
Batt, Spare	4	MF43H	IFM Tools, Electric Screwdriver
Batt Cap Fuse Assy		MF71O	
Batt Charger		A17	L1A Camcorder Bag
Batt Charger, DCS		L10 Upper	
Batt Pack, BPSMU	2	MF71O	
Binoculars, 8x20		A16	General Purpose Bag
Binoculars, 20x60S		A16	General Purpose Bag
Bioinstrumentation System		MF28H	Med Kit
Blanket, MD Contingency		Vol D	MD52C
Board, OCA		R12 Lower	
Body Cap		A16	35mm Camera Bag
Body Seal Closure Tool		Vol H	MD23R, INBOARD, A/L Stow Bag
BPSMU		MF71O	
Bracket, EVA Camera Long		MA9L	FRONT, HST Camera Bag
Bracket, Mini-Cam HUD		A17	L1A Camcorder Bag

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
B (Cont)			
Bracket, Multiuse	3	A16	General Purpose Bag
	2	MA9N	
Bracket Base, Multiuse		A16	General Purpose Bag
Bracket Clamp, Multiuse	3	A16	General Purpose Bag
Breaker Bar, 3/8 in		MF14K	
Breakout Box		MF14K	
Bulb Assy, Narrow	2	Vol H	MD23R, OUTBOARD
Bumper Ring		A16	35mm Camera Bag
Bungee, Adjustable	7	MF14H	
Bushing, RSK, Spare		MF43H	IFM Tools

C

Cabin Air Cleaner		Vol 3B	MA73J
Cable, AC Extension, 15 ft		ML60J	LW MAR
Cable, AC Extension, 20 ft		ML60J	LW MAR
Cable, AC Pwr Transfer, 15 ft		MA12B	Window Shade Bag, IFM CHCK Bag
Cable, AC W		ML60J	LW MAR
Cable, ATU Recorder		MA9L	REAR, HST Camcorder Bag
Cable, ATU Recorder, 9.5 ft		L10 Upper	
Cable, A/V Adapter		MA9L	REAR, HST Camcorder Bag
Cable, Balanced Video		MA9L	REAR, HST Camcorder Bag
Cable, Biomed	2	MF28H	Med Kit
Cable, BNC Straight Adapter	3	L10 Lower	

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
C (Cont)			
Cable, BNC to BNC		MF71O	
Cable, BNC to RCA Adapter		L10 Lower	
Cable, BPSMU to CCU		MF71O	
Cable, CC Video Pwr		MA9L	REAR, HST Camcorder Bag
Cable, Comm, 4 ft		MF14H	Comm Kit
Cable, Comm, 14 ft		MF14H	Comm Kit
Cable, CWS Contingency Pwr	2	MF43H	IFM Tools
Cable, Digital CC Vid/Pwr, 15 ft		L10 Upper	
		A17	L1A Camcorder Bag
Cable, DC Harness, 24 ft	2	MA12B	Window Shade Bag, IFM CHCK Bag
Cable, DC Pigtail Connector	2	MA12B	Window Shade Bag, IFM CHCK Bag
Cable, DC Pwr, 25 ft		L11 Lower	PGSC
Cable, DCS 7V DC Pwr Adapter, 15 ft		L10 Upper	
Cable, DCS 28V DC Pwr Adapter, 6 ft		L10 Upper	
Cable, EHIP PGT	3	MF57C	
Cable, Ethernet, 3 ft		ML60J	LW MAR
		R12 Lower	
Cable, Ethernet, 25 ft		R12 Lower	
Cable, Ethernet Terminator	2	L10 Lower	
Cable, Fuel Cell PCMMU Data	2	R12 Lower	
Cable, Hasselblad RS 232		A16	70mm Camera Bag
Cable, HST PDIP Y		L11 Lower	PGSC
Cable, IEEE 1374 Firewire		A17	L1A Camcorder Bag
Cable, LCD Monitor		Vol 3B	MA73J

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
C (Cont)			
Cable, LIDAR I/F	2	MF71O	
Cable, Mini-Cam Extension, 13 ft		L10 Upper	
Cable, Mini-Cam On-Orbit, 10 ft		L10 Upper	
Cable, OCA I/F, 25 ft		L10 Lower	
Cable, Parallel Data, 25 ft		ML60J	LW MAR
Cable, Payload Jumper	2	MA12B	Window Shade Bag, IFM CHCK Bag
Cable, PCMMU, 24 ft		L10 Lower	
Cable, PD100 A/V Adapter		A17	L1A Camcorder Bag
Cable, PGSC Pwr, 6 ft		MF71O	
Cable, PGSC Pwr, 25 ft		R12 Lower	
Cable, PGSC Pwr Adapter, 25 ft		R12 Lower	
Cable, PGT/EHIP Y-Pwr Charger		MA16J	
		Vol H	MD23R, INBOARD
		Vol H	MD23R, OUTBOARD
Cable, RCA-RCA	2	A17	L1A Camcorder Bag
Cable, RS-232 Pwr/Data Y		MF71K	FRONT
Cable, RS-422 Adapter	3	L10 Lower	
Cable, Shutter Release Extension		A16	35mm Camera Bag
Cable, SSV to PDIP	2	MF71O	
Cable, Stereo/Mono Adapter		L10 Upper	
		MA9L	REAR, HST Camcorder Bag
Cable, T-Connector		ML60J	LW MAR
Cable, Teleconference Camera Video Pwr	2	R12 Lower	

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
C (Cont)			
Cable, Video IN/OUT	2	R12 Lower	
Cable, VIU/CM-CC Video, 15 ft		L10 Upper	
		R12 Lower	
	2	A17	L1A Camcorder Bag
		MA9L	REAR, HST Camcorder Bag
Cable, VLHS to VTS I/F		R12 Lower	
Cable, VPU Patch		A17	L1A Camcorder Bag
Cable, Y-C		A17	L1A Camcorder Bag
Cable Assy, Shutter Release		A16	35mm Camera Bag
Caddy, Dual Tether		MA16G	
Caddy, General Purpose Tool		Vol H	MD23R, OUTBOARD
Caddy, Single Tether		MA16G	
Caddy, Tool		MA9G	
Caddy, VIK		MF43K	
Caddy, Wire Tie		MA16G	
Calculator	2	Vol 3B	MA73J
Camcorder, L1A/Tape		A17	L1A Camcorder Bag
Camcorder, PD100		MA9L	REAR, HST Camcorder Bag
Camera, 35mm EVA	2	MA9L	FRONT, HST Camera Bag
Camera, 35mm/Film		A16	35mm Camera Bag
		A17	IN CUSHION
Camera, 70mm/Film Mag		A16	70mm Camera Bag
		A17	IN CUSHION

ITEM	QTY	LOCATION	NOTES
C (Cont)			
Camera, DCS		L10 Lower MF43M	
Camera, Mini-Cam	2	A17	L1A Camcorder Bag
Camera Mount, Loc-Line Adapter Plate		A16	General Purpose Bag
Camera Mount, Loc-Line Flex Bracket		A16	General Purpose Bag
Canister, ATCO		LiOH Vol	MD52M
Canister, LiOH	29	LiOH Vol	MD52M
Canister, WCS (Coffee Can)		MF14H	
Card, PCMCIA	4	L10 Lower	
Card, Tri Port PCMCIA RS-422/MCIU	5	ML60E	LW MAR
Cartridge, ACTEX	2	MF28K	
Cartridge, Ink	2	ML60J	LW MAR
CCA	2	A/L Ceiling	
	2	A/L Floor	
	2	Internal A/L	PORT
		Internal A/L	STBD
CCC	10	MF43C/E	
	2	Vol D	MD52C
Charger, Batt Pack		Vol H	MD23R, INBOARD
		Vol H	MD23R, OUTBOARD
Charger, EHIP		MA9J	
Charger, EMU	2	MA9J	
Charger, REBA	2	MA9J	
Cheater Bar		Vol D	MD52C

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
C (Cont)			
Chem Light, Red	28	MA9N	
Clamp	6	MA12B	Window Shade Bag, IFM CHCK Bag
Clamp, Hose	8	MA12B	Window Shade Bag, IFM CHCK Bag
Clothing, 1st Day	7	WMC	
Clothing, CDR		MF14G	
Clothing, MS1		MF43G	
Clothing, MS2		MF57G	
Clothing, MS3		MF71G	
Clothing, MS4		MF57M	
Clothing, MS5		MF71M	
Clothing, PLT		MF28G	
COAS		MF43M	
Compound Cutter		MF57C	
Connector, ESCU		Vol H	MD23R, OUTBOARD, A/L Accessories Bag
Connector, IFM Jumper		MF43H	IFM Tools
Connector, PGT Batt Jumper	2	MA16J	
Connector Strap, SA2	3	MF43K	
Connector Tool, Circular		MF57C	
Connector Tool, High Torque	3	MF71H	
Connector Tool, ORU Small		MF57C	
Container, Sharps		MF28H	Med Kit
Controller, PRT		MA16L	
Cover, HUD	4	MF14H	
Cover, MWC Flight		Vol H	MD23R, OUTBOARD

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ITEM	QTY	LOCATION	NOTES
C (Cont)			
Cover, Parachute	7	MF14H	
Crevice Tool		ML60J	LW MAR, DC Vacuum Cleaner
Crew Hook Lock Assy	2	MA16G	
Crew Hook Lock Lanyard	2	MA16G	
Crew Support		MF71K	REAR
Crowfoot, RCRS		MF43H	IFM Tools, GPC Grounding Strap Bag
CUCD, Male	54	Vol G	MD80R
CWC	2	Vol G	MD80R
D			
Desk, PGSC	2	MA12B	
Diffuser		MF43M	
Dosimeter		MF28H	
Dosimeter, Audio		Vol 3B	MA73J
Drive, Removable Floppy		L10 Lower	
Driver, Ball		MA9G	
Driver, Allen, 5/32 in		MF43H	IFM Tools, Electric Screwdriver
Dry Wipes	9 pkg	WMC	
	8 pkg	LiOH Vol	MD52M
Duxseal		MF43H	IFM Tools, Patch Kit Assy
Dynaband		MF43H	IFM Tools

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ITEM	QTY	LOCATION	NOTES
E			
EMU, Short		A/L Ceiling A/L Floor Internal A/L Internal A/L	PORT STBD
EMU Donning Handles	2	MD23R	Vol H, INBOARD, A/L Stow Bag
EMU Helmet Light		MD23R	Vol H, INBOARD
		MD23R	Vol H, OUTBOARD
ERCA		ML60B	LW MAR
		ML60M	LW MAR
F			
FDF		C4A C4F R3A R3F MF14M MF57H MA9N	
Fiberscope Light Source	27	A16	35mm Camera Bag
Film, 35mm	27	A16	70mm Camera Bag
	3	A17	IN CUSHION
	55	MA9L	FRONT, HST Camera Bag

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
F (Cont)			
Film Mag, 70mm	5	A17	IN CUSHION
	4	MF43M	
	20	MF71C	
Filter, Microbial		MF28K	
Filter, Odor Bacteria		Vol G	MD80R
Filter, Wand Extender Assy		MA12B	Window Shade Bag, IFM CHCK Bag, Water Equipment Assy
Filter, Waste Water Dump		MF14K	
Filter, Wratten	2	A16	70mm Camera Bag
Filter Hose Assy		MF28K	
Filter Tool, Cabin Fan		ML60J	LW MAR, DC Vacuum Cleaner
Filter Tool, DDU		ML60J	LW MAR, DC Vacuum Cleaner
Flash, 35mm	4	A16	35mm Camera Bag
Flash Cord		A16	70mm Camera Bag
Flashlight Bulbs	12	MF43H	IFM Tools
Flex Tool		ML60J	LW MAR, DC Vacuum Cleaner
Foam Applicator Valve	2	MF43H	IFM Tools, Patch Kit Assy
Food, Fresh		MF57E	
Food, Menu		MF14E	
		MF14O	
		MF28E	
		MF57K	
		MF71E	
		MA9F	

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REF/109/FIN

ITEM	QTY	LOCATION	NOTES
F (Cont)			
Food, Pantry		Vol A	MF57A
FRED		MF14E	
FRED, Leg Bar		A16	
Fuse Plug, PDV		MF71H	
G			
Galley Needle (Spare)	2	MA12B	Window Shade Bag, IFM CHCK Bag, Water Equipment Assy
Gloves	2 pkg	WMC	
	1 pkg	Vol B	MA4D
	1 pkg	Vol G	MD80R
Gloves, Phase VI	4	MF28M	
		A/L Ceiling	
		A/L Floor	
		Internal A/L	PORT
		Internal A/L	STBD
Gloves, Shoulder Length	1 pkg	Vol B	MA4D
G-Suit	7	Vol B	MA4D

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ITEM	QTY	LOCATION	NOTES
H			
Hand Controller, PILOT		MF71K	FRONT
Harness, PGT RS-422		MF57C	
Headphones		A17	L1A Camcorder Bag
Helmet		A/L Ceiling	
		A/L Floor	
Hose, 1/4 in (6 ft)		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, 3/8 in (6 ft)		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, ACTEX		MF28K	
Hose, Cont Blue/Blue		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, Cont Red/Red		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, Cont Yellow/Yellow		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, CWC Contingency		MA12B	Window Shade Bag, IFM CHCK Bag
Hose, Flex		ML60J	LW MAR, DC Vacuum Cleaner
Hose, Personal Hygiene		MF14H	
Hose, Suction		ML60J	LW MAR, DC Vacuum Cleaner
Hose, WCS Canister		MF14H	
I			
IFM Tools		MF43H	

ITEM	QTY	LOCATION	NOTES
K			
Key Strap		MA16N	
Kit, Comm		MF14H	
Kit, Connector Cleaner		MA16N	
Kit, Contaminant Cleanup/Eyewash		MA9N	
Kit, Crew Options		A/L Ceiling	
		A/L Floor	
		Internal A/L	PORT
		Internal A/L	STBD
Kit, Electrode Attachment		MF28H	Med Kit
Kit, EMU Servicing		Vol F	MD76M
Kit, HDRR Repair		MF43H	IFM Tools
Kit, Leg Sizing	2	Vol D	MD52C
Kit, Lens/Window Cleaning		A16	70mm Camera Bag
	2	Vol H	MD23R, OUTBOARD
Kit, Lower Arm	3	ML60B	LW MAR
	3	ML60M	LW MAR
Kit, Med		MF28H	
Kit, Operational Bioinstrumentation		MF28H	Med Kit
Kit, Re-Entry		Vol A	MF57A, Pantry Food
Kit, RMS D&C		MF14K	
Kit, Saliva		MF14H	
Kit, SSV Fuse		MF71O	
Kit, Thigh Sizing		Vol D	MD52C
Kit, Waveoff Re-Entry		MA9N	

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ITEM	QTY	LOCATION	NOTES
K (Cont)			
Kit, Velcro	2	MF43H	IFM Tools
Kit, Video Fiberscope		MA9N	
Kit, Voltage Improvement		MF43K	
Kit Assy, Saliva	5	MF28O	
L			
LCVG	2	A/L Ceiling	
		A/L Floor	
	2	Internal A/L	PORT
		Internal A/L	STBD
Leg Assy	3	Vol D	MD52C
Lens, 6mm Mini-Cam		A17	L1A Camcorder Bag
Lens, 12mm Mini-Cam		A17	L1A Camcorder Bag
Lens, 16mm		A16	35mm Camera Bag
Lens, 17-35mm		A16	35mm Camera Bag
Lens, 28mm		A16	35mm Camera Bag
	2	MA9L	FRONT, HST Camera Bag
Lens, 28-70mm		A16	35mm Camera Bag
Lens, 35mm		MA9L	FRONT, HST Camera Bag
Lens, 50mm		A16	35mm Camera Bag
Lens, 80-200mm		MA9L	FRONT, HST Camera Bag
Lens, 180mm		A16	35mm Camera Bag
Lens, 350mm		A17	IN CUSHION

ITEM	QTY	LOCATION	NOTES
L (Cont)			
Lens, 400mm		A17	IN CUSHION
Lens, Hasselblad, 50mm		A16	70mm Camera Bag
Lens, Hasselblad, 110mm		A16	70mm Camera Bag
Lens, Hasselblad, 250mm		A16	70mm Camera Bag
Lens, PD100 Wide Angle		A17	L1A Camcorder Bag
Lens, Teleconverter 2X		A16	35mm Camera Bag
LIDAR	2	MF71O	
Light Shields	2	MF43M	
LiOH		MF43C/E	
	9	MA16D/F	
Lower Torso	4	Vol D	MD52C
		A/L Ceiling	
		A/L Floor	
		Internal A/L	PORT
		Internal A/L	STBD
Lubricant		MF43H	IFM Tools, Patch Kit Assy
M			
MAGR		MA9D	
MAGs	18	Airlock	Crew Options Kits
Manual Door Stay		MA16N	
Manual Winder Assy	2	A16	70mm Camera Bag

ITEM	QTY	LOCATION	NOTES
M (Cont)			
MFR Handhold		Vol D	MD52C
Mic, Handheld	3	MF14H	Comm Kit
Microbial Check Valve		MF28K	
Microcassette	28	Vol 3B	MA73J
Microphone		A17	L1A Camcorder Bag
Mirror	2	MF14H	
		MA9G	
Mirror, EMU	2	A/L Ceiling	
		A/L Floor	
	2	Internal A/L	PORT
	2	Internal A/L	STBD
Modified Gimbal Assy	2	MA16N	
Monitor, LCD		Vol 3B	MA73J
Multimeter/Temp Probe		MF43H	IFM Tools
MWS	2	MA16N	
N			
Neck Ring Pad		Vol B	MA4D
Nightscope		MF71O	LIDAR

ITEM	QTY	LOCATION	NOTES
O			
O2 Bleed Orifice		MF14H	
OFK		Vol E	MD76C
Oxone Hose Segment	11	MF28M	
P			
Panel Covers, A8 Fasteners	6	MA12B	Window Shade Bag
Panel Covers, A8 Lower		MA12B	Window Shade Bag
Panel Covers, A8 Upper		MA12B	Window Shade Bag
Panel Covers, R2 Standoffs	5	MA12B	Window Shade Bag
Panel Covers, R2 Stiffeners	2	MA12B	Window Shade Bag
Panel Covers, R2 Tie Down, Elastic		MA12B	Window Shade Bag
Panel Covers, R2 Tie Down, Snap	2	MA12B	Window Shade Bag
Paper Tray, Color Printer		MF28K	
Paper, Color Printer	2	ML60J	LW MAR
Patch Kit Assy		MF43H	IFM Tools
PBI Braided Cord		MF43H	IFM Tools
PCMCIA	5	MF43M	
PCMCIA Card Dual Port	3	ML60E	LW MAR
PDIP		L12	
PGSC	2	L10 Lower	
	2	L11 Lower	
	4	ML60E	LW MAR

ITEM	QTY	LOCATION	NOTES
P (Cont)			
PGSC, STS6 – RPOP		R12 Lower	
PGT	2	MA16J	
PHK	7	MA9N	
Photo Floodlight		MF43M	
Pin Kit Assy		MF43H	IFM Tools
Pip Pin	12	MF14H	
Pip Pin, Escape Pole (Spare)		MF14H	
Prefilter, Conical	20	WMC	
	20	Vol B	MA4D
Printer, Color		MF28O	
		ML60J	LW MAR
Protective Cover Wireway	3	MA12B	Window Shade Bag, IFM CHCK Bag
Pry Bar		A17	
Pull-Ups	24	Vol G	MD80R
Purge Device		MA12B	Window Shade Bag, IFM CHCK Bag, Water Equipment Assy
Pwr Supply, DC	3	R12 Lower	
Pwr Tool, Pistol Grip		MF71H	
Q			
Quick Don Mask	7	Vol 3B	MA73J

ITEM	QTY	LOCATION	NOTES
R			
Ratchet, 3/8-in Drive	2	MF71H	
Ratchet, 3/8 in w/Socket		Vol H	MD23R, OUTBOARD, A/L Accessories Bag
Recorder, Microcassette	7	Vol 3B	MA73J
Recorder, V10		R12 Lower	
Remote	2	A16	70mm Camera Bag
		A17	L1A Camcorder Bag
Restraint	4	MF28H	Med Kit
Restraint, LTA		A/L Ceiling	
		A/L Floor	
		Internal A/L	PORT
		Internal A/L	STBD
Restraint, Foot Loop (Spare)	6	MA9N	
Restraint, Seat (Spare)	2	MA9N	
Resuscitator		MF28H	Med Kit
S			
SA2 Bistem Strap	2	Vol D	MD52C
Sanitation Agent	2	WMC	
Saw, Bone		MF43H	IFM Tools
Scissors, Tethered		A/L Ceiling	
		A/L Floor	
		Internal A/L	PORT
		Internal A/L	STBD

FS 2-23

REF/109/FIN

ITEM	QTY	LOCATION	NOTES
S (Cont)			
Scraper Tool		WMC	
Screwdriver, Electric		MF43H	IFM Tools
Separator, Water/Gas	2	MA12B	Window Shade Bag, IFM CHCK Bag, Water Equipment Assy
Shade, Monitor	2	MA12B	Window Shade Bag
Shuttle CSA-CP		MF71C	
Socket	3	MA9G	
Socket, Hex, 6-in Wobble		MA16G	
Socket, Hex Adjustable Long		MA16G	
Socket, Hex Rigid, 6 in		MA16G	
Socket, Spring, 4 in		MA16G	
Socket Extension	2	MA9G	
Socket Set, Metric		MF43H	IFM Tools
SOP Checkout Fixture		Internal A/L	PORT
		Internal A/L	STBD
Spot Beam	2	Vol H	MD23R, OUTBOARD
Spotlight		Vol 3B	MA73J
SSP 1/SSP 2		L12	
SSP 3		L11 Upper	
SSV Compression Encoder		MF71O	
Standard McCaddy	2	MA16G	
Subpack, Airway		MF28H	Med Kit
Subpack, Drug		MF28H	Med Kit
Subpack, EENT		MF28H	Med Kit

FS 2-24

REF/109/FIN

ITEM	QTY	LOCATION	NOTES
S (Cont)			
Subpack, IV Admin		MF28H	Med Kit
Subpack, Trauma		MF28H	Med Kit
Switch Guard, Computer		MF14H	
T			
Tape, Aluminum		MF43H	IFM Tools
Tape, Digital CC	180	MA9L	REAR, HST Camcorder Bag
Tape, Digital Video	144	L10 Upper	
	36	A17	L1A Camcorder Bag
Tape, Gray, 1 in		MF14H	
		MF43H	IFM Tools
Tape, Gray, 2 in		MF14H	
	2	MF43H	IFM Tools
Tape, Kapton		MF43H	IFM Tools
Tether	2	MA9G	
Tether, Adjustable Equip		Internal A/L	PORT
		Internal A/L	STBD
Tether, Adjustable Equip, 34 in	3	MA16G	
Tether, Adjustable Equip, 80 in		MA16G	
Tether, Adjustable Equip, Sm-Sm	4	MA16G	
Tether, Adjustable Fuse	2	MA16G	
Tether, ASW	2	MF43H	IFM Tools, GPC Grounding Strap Bag

FS 2-25

REF/109/FIN

ITEM	QTY	LOCATION	NOTES
T (Cont)			
Tether, ERCM	2	MA16G	
Tether, Retractable Equip	2	MA16G	
	4	MF43K	
		Internal A/L	PORT
		Internal A/L	STBD
Tether, Retractable Equip, Sm-Lg	4	MA16G	
Tether, Retractable Equip, Sm-Sm	3	MA16G	
Tether, Retractable Equip, Sm-Sm Ret	6	MA16G	
Tether, Waist	3	Internal A/L	PORT
	2	Internal A/L	STBD
Tie Wrap/Bungee Assy		MF71K	FRONT
Tie Wrap, 6 in	50	MF43H	IFM Tools
Tie Wrap, Mini-Cam		A17	L1A Camcorder Bag
Toilet Tissue	8 pkg	WMC	
	2 pkg	Vol B	MA4D
Tool Boards, HST	2	MA9G	
Tool Table Cloth		MF43H	IFM Tools
Torque Limiter	2	MA9G	
Towels	39	WMC	
	40	Vol B	MA4D
Transformer, Bal/UnBal		MF71O	
		MA9L	REAR, HST Camcorder Bag
Trash Bag, Aux Wet		WMC	

ITEM	QTY	LOCATION	NOTES
T (Cont)			
Trash Bag, Coffee Can	10 pkg	WMC	
Trash Bag, Utility	8 pkg	LiOH Vol	MD52M
Trash Bag, WMS (Spare)	39	Vol A	MF57A, Pantry Food
Turnbuckles		MA9N	
		MF14K	
U			
Umbilical, 6 ft		MA16L	
Urinal Funnel, Female (Round)	2	WMC	
Urinal Funnel, Male	6	WMC	
Utensils		Vol A	MF57A, Pantry Food
V			
Vacuum Cleaner, DC		ML60J	LW MAR
Velcro Strap	50	MF43H	IFM Tools
Viewfinder	2	MA9L	FRONT, HST Camera Bag
VLHS	2	MF14H	Comm Kit
VPU		R12 Upper	
VPU Plug		L10 Upper	

ITEM	QTY	LOCATION	NOTES
W			
Washcloth	40	WMC	
	114	Vol B	MA4D
Water Dispenser, Cont		MA12B	Window Shade Bag, IFM CHCK Bag, Water Equipment Assy, Water/Gas Separator
Water Equipment Assy		MA12B	Window Shade Bag, IFM CHCK Bag
WCS Tool		WMC	
Wet Trash		Vol F	MD76M
Wet Washes	10 pkg	WMC	
	12 pkg	LiOH Vol	MD52M
	2 pkg	Vol B	MA4D
Wet Wipes	9 pkg	Vol B	MA4D
	3 pkg	Vol G	MD80R
Window Shades, Ovhd	2	MA12B	Window Shade Bag
Wrench, Allen	2	MA9G	
Wrench, EVA Adjustable		Vol H	MD23R, OUTBOARD, A/L Accessories Bag
Wrench, PRT		MA16L	
Z			
Ziploc Bag, 8 in	20	MF14H	
Ziploc Bag, 12 in	8	MF14H	
Ziploc Bag, 13 x 18	8	Vol G	MD80R

FDF DOCUMENTATION STOWAGE

- LAUNCH CONFIG - LOCKER FS 3-2
- ALPHABETICAL FS 3-3

FDF

FDF

FDF DOCUMENTATION STORAGE
LAUNCH CONFIG – LOCKER
(EXCLUDES “IN USE” ITEMS)

R3F

ENT
ENT PKT (Vol II)
POST INSERTION
SYS AOA

R3A

Data Card Kit
ASC Data Cards
DEORB and ENT Cards
ORBIT Data Cards
ORB PKT (Vol II)

C4F

ENT
ENT PKT (Vol II)
Helmet Bag
POST INSERTION
Star Chart
SYS AOA

C4A

FDF Accessory Kit 1
ORB PKT (Vol II)

MF14M

CD-ROM Disk Set
Closeout Photo CD
COSS CD (10)
EMU OIU/EMU Resizing
CD
EVA Ref Data CD
EVA Tasks CD
FDF CD
PGSC S/W CD
Disk Sleeve Unit
Auto XD Configurator
Blank Formatted Disk (2)
Disk Stowage Bags
(Ziploc/Velcro) (2)
Norton Utilities Emergency
Disk (2)
OCA Data Disk (2)
PCMCIA Hard Disk, Late
Updates
PGSC S/W Loading Disk
RF Comm Link Test Utility
Disk

MF14M

(Cont)
EVA Closeout Photo Book
EVA Cue Card Kit
EVA Cuff Kit (2)
EVA Cuff C/L (4)
FDF Accessory Kit 2
HST Photo Book
IFM
Ldg Site Video KSC
(Mini-DV Tape)
Ldg Site Video Other
(Mini-DV Tape)
MAL (Vols I and II)
MED
Message Binder, Special
Config
Message Folder, Blue
Nomex (2)
PL SYS (2)
Removable Hard Drive,
PGSC – Router & STS
Removable Hard Drive,
PGSC – STS HD Load

MF57H

DEORBIT PREP (3)
EVA (2)
EVA FS
HST DPY (4)
Middeck Cue Card Kit
Middeck Overlay Kit
PL OPS (3)
World Atlas (w/MET list)
Flight Deck Stowage Bag 1
Book Clip, Gold (6)
CONT DEORB (2)
ORB OPS (3)
ORB PKT (Vol II)
PHOTO/TV (2)
Flight Deck Stowage Bag 2
FLIGHT PLAN (2)
PDRS OPS (2)
REF DATA
RNDZ (4)

**FDF DOCUMENTATION STOWAGE
LAUNCH CONFIG – ALPHABETICAL**

<u>ITEM</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>LOCATION</u>
ASC Data Cards	IN USE, R3A (Data Card Kit)	ENT PKT (Vol II) (4)	IN USE (2), R3F (1), C4F (1)
ASC (4)	IN USE	ET PHOTO Cue Card (2)	IN USE
ASC PKT (Vol II) (4)	IN USE	EVA (2)	MF57H
AUTO XD Configurator	MF14M (Disk Sleeve Unit)	EVA FS	MF57H
Blank Formatted Disk (2)	MF14M (Disk Sleeve Unit)	EVA Closeout Photo Book	MF14M
Book Clip, Gold (8)	IN USE (2), MF57H (FD Stowage Bag 1) (6)	EVA Cue Card Kit	MF14M
CDR Ascent Flip Book	IN USE	EVA Cuff C/L (4)	MF14M
CDR Ascent Flip Book Support	IN USE	EVA Cuff Kit (2)	MF14M
CDR Window Flip Book	IN USE	EVA Ref Data CD	MF14M (CD-ROM Disk Set)
CD-ROM Disk Set	MF14M	EVA Tasks CD	MF14M (CD-ROM Disk Set)
Closeout Photo CD	MF14M (CD-ROM Disk Set)	FDF CD	MF14M (CD-ROM Disk Set)
CONT DEORB (2)	MF57H (FD Stowage Bag 1)	<u>FDF Accessory Kit 1</u>	C4A
COSS CD (10)	MF14M (CD-ROM Disk Set)	Binder Rings, Locking (3 Metal, 3 Nylon)	
Crew Notebooks (7)	IN USE	Book Clamps (2)	
Data Card Kit	R3A	Book Clips, Gold (6)	
DEORB and ENT Cards	R3A (Data Card Kit)	Drafting Dots (20)	
DEORB PREP (3)	MF57H	Pencils, Mechanical (4)	
Disk Sleeve Unit	MF14M	Rubber Band Kit	
Disk Stowage Bags (Ziploc/Velcro) (2)	MF14M (Disk Sleeve Unit)	Switch Caps (20)	
Dots, Yellow (1 Sheet)	IN USE	Tape Dispenser w/Tape	
Emergency Egress Cue Card (5)	IN USE	Tape, Yellow	
EMU OIU/EMU Resizing CD	MF14M (CD-ROM Disk Set)	Tether, Short (8)	
ENT (4)	IN USE (2), R3F (1), C4F (1)	Velcro (10 hook, 10 pile) (2X2)	
		Yellow Dots (1 sheet)	

**FDf DOCUMENTATION STOWAGE
LAUNCH CONFIG – ALPHABETICAL (Cont)**

<u>ITEM</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>LOCATION</u>
<u>FDf Accessory Kit 2</u>	MF14M	IFM	MF14M
Binder Rings, Locking (3 Metal, 3 Nylon)		Ldg Site Charts	IN USE
Book Clamps (2)		Ldg Site Video KSC (Mini–DV Tape)	MF14M
Book Clips, Gold (6)		Ldg Site Video Other (Mini–DV Tape)	MF14M
Cable Tags (6)		MAL (Vols I and II)	MF14M
Drafting Dots (20)		MED	MF14M
Highlighter, Narrow Tip (1 ea) (Yellow, Blue)		Message Binder, Special Config	MF14M
Pencils, Grease (1 ea) (Black, Red)		Message Folder, Blue Nomex (2)	MF14M
Pencils, Mechanical (4)		Middeck Cue Card Kit	MF57H
Pens, Sharpies (Black) (1 ea) (Ultra–fine, Xtra–fine)		Middeck Overlay Kit	MF57H
Post–It Notes (1 ea) (1.5x2, 3x3, 3x5)		Norton Utilities Emergency Disk (2)	MF14M (Disk Sleeve Unit)
Post–It Tabs (7 pkg)		OCA Data Disk (2)	MF14M (Disk Sleeve Unit)
Tape Dispenser w/Tape		ORBIT Data Cards	R3A (Data Card Kit)
Tethers, Short (8)		ORB OPS (3)	MF57H (FD Stowage Bag 1)
Velcro (15 hook, 15 pile) (2x2)		ORB PKT (Vol II) (3)	R3A (1), C4A (1), MF57H (FD Stowage Bag 1)
Yellow Dots (1 sheet)		Panel R14 Cue Card	IN USE
Flight Deck Stowage Bag 1	MF57H	PCMCIA Hard Disk, Late Updates	MF14M (Disk Sleeve Unit)
Flight Deck Stowage Bag 2	MF57H	PDRS OPS (2)	MF57H (FD Stowage Bag 2)
FLIGHT PLAN (2)	MF57H (FD Stowage Bag 2)	PGSC S/W CD	MF14M (CD–ROM Disk Set)
Helmet Bag	C4F	PGSC S/W Loading Disk	MF14M (Disk Sleeve Unit)
HST DPY (4)	MF57H		
HST Photo Book	MF14M		

**FDf DOCUMENTATION STOWAGE
LAUNCH CONFIG – ALPHABETICAL (Cont)**

<u>ITEM</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>LOCATION</u>
PHOTO/TV (2)	MF57H (FD Stowage Bag 1)		
PI Middeck Reconfig Page	IN USE		
PL OPS (3)	MF57H		
PL SYS (2)	MF14M		
PLT Ascent Flip Book	IN USE		
PLT Ascent Flip Book Support	IN USE		
PLT Ovhd Flip Book	IN USE		
PLT Window Flip Book	IN USE		
POST INSERTION (4)	R3F (1), C4F (1), IN USE (2)		
REF DATA	MF57H (FD Stowage Bag 2)		
Removable Hard Drive, PGSC – Router & STS	MF14M		
Removable Hard Drive, PGSC – STS HD Load	MF14M		
RF Comm Link Test Utility Disk	MF14M (Disk Sleeve Unit)		
RNDZ (4)	MF57H (FD Stowage Bag 2)		
Star Chart	C4F		
SYS AOA (3)	IN USE (1), C4F (1), R3F (1)		
Wedge (2)	IN USE		
World Atlas (w/MET List)	MF57H		

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FS 3–6

REF/109/FIN

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UTILITY OUTLET PLUG-IN PLAN

PANEL REFERENCE

FLT DECK FS 4-2
MIDDECK FS 4-3

PWR/DATA/VIDEO: PRE-ROUTED CONFIG

FLT DECK FS 4-4
MIDDECK FS 4-5

PWR/DATA/VIDEO: ASCENT CONFIG

FLT DECK FS 4-6
MIDDECK FS 4-7

PWR/DATA/VIDEO: ENTRY CONFIG

FLT DECK FS 4-8
MIDDECK FS 4-9

PWR: ON-ORBIT CONFIG

FLT DECK FS 4-10
MIDDECK FS 4-11

DATA: ON-ORBIT CONFIG

FLT DECK FS 4-12
MIDDECK FS 4-13

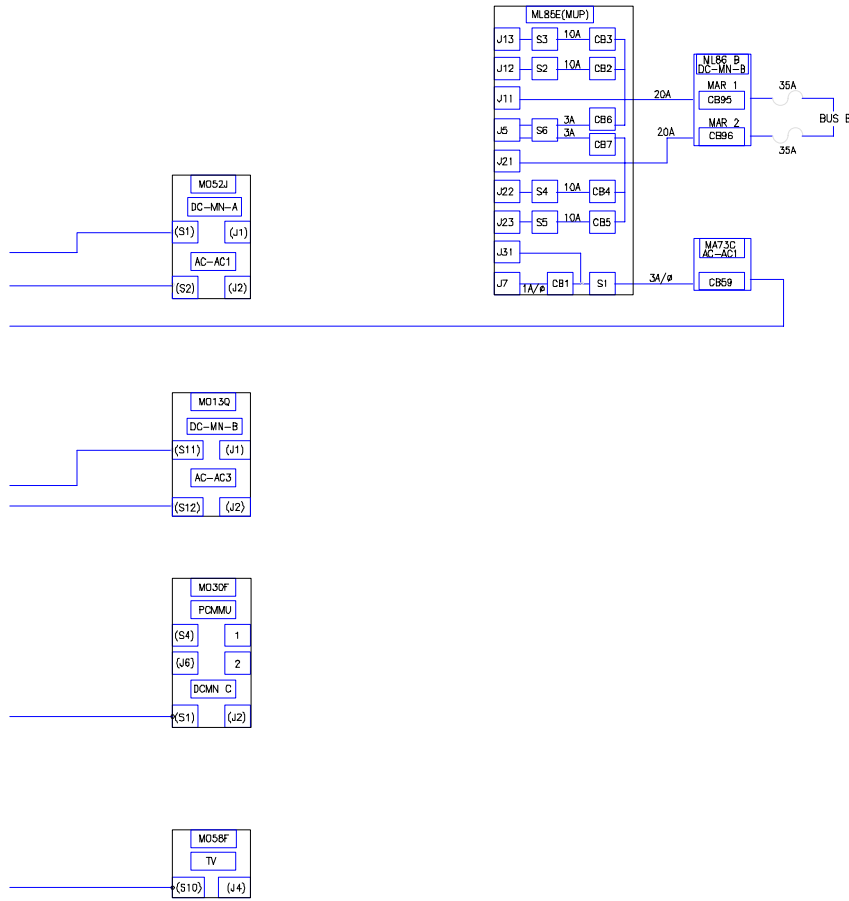
VIDEO: ON-ORBIT CONFIG

FLT DECK FS 4-14
MIDDECK FS 4-15

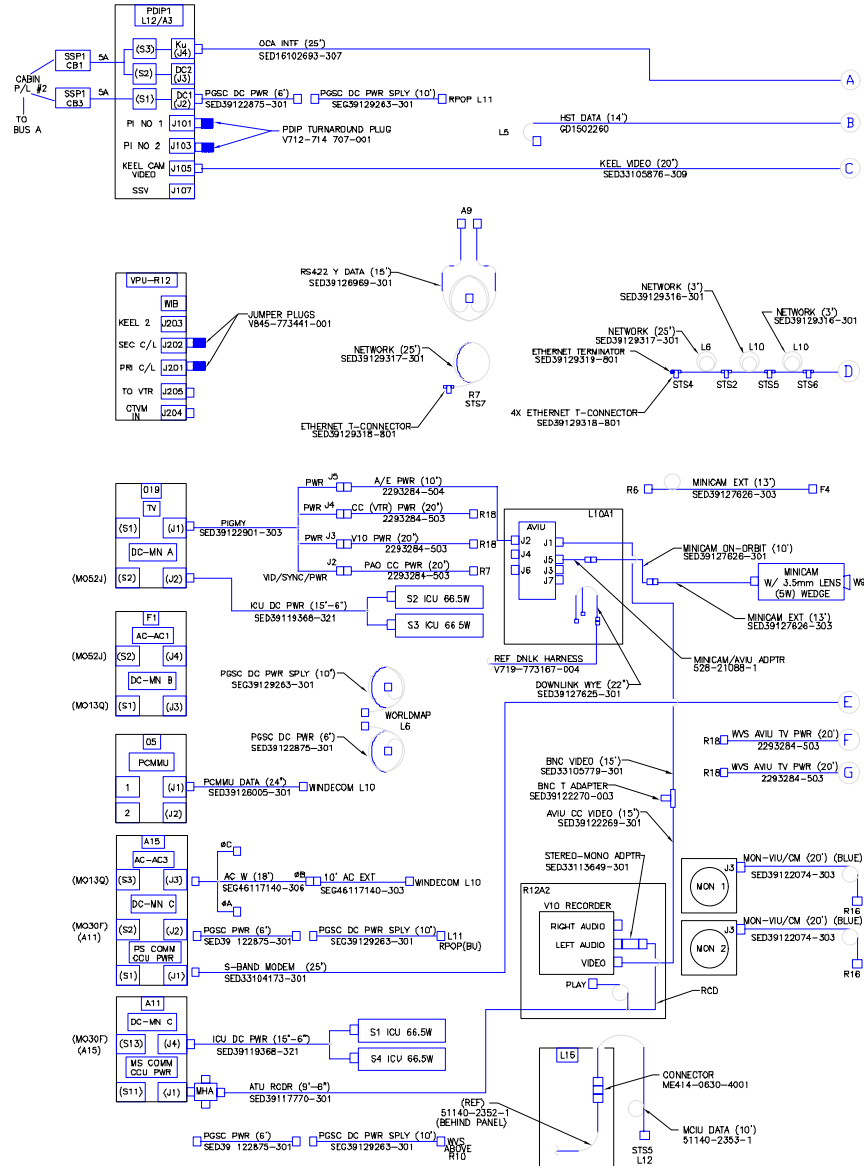
**UTIL
PWR**

PANEL REFERENCE – MIDDECK

1/9/02

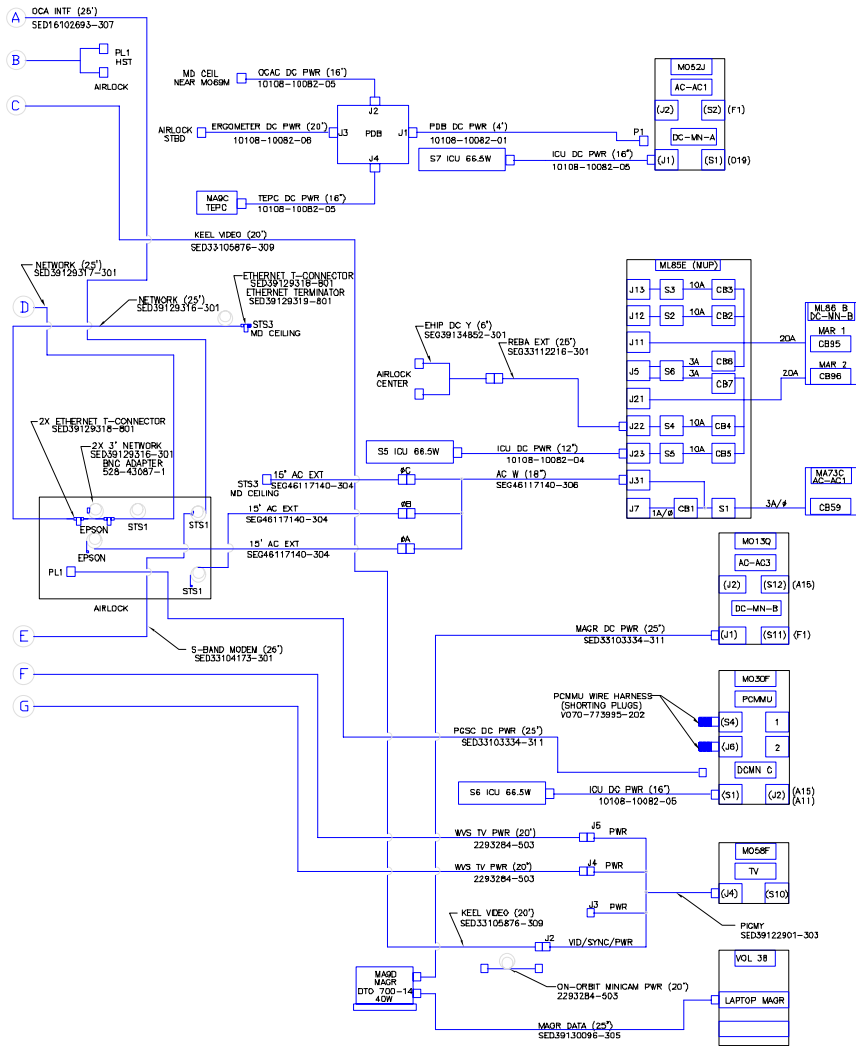


PWR/DATA/VIDEO: PRE-ROUTED CONFIG - FLT DECK



PWR/DATA/VIDEO: PRE-ROUTED CONFIG – MIDDECK

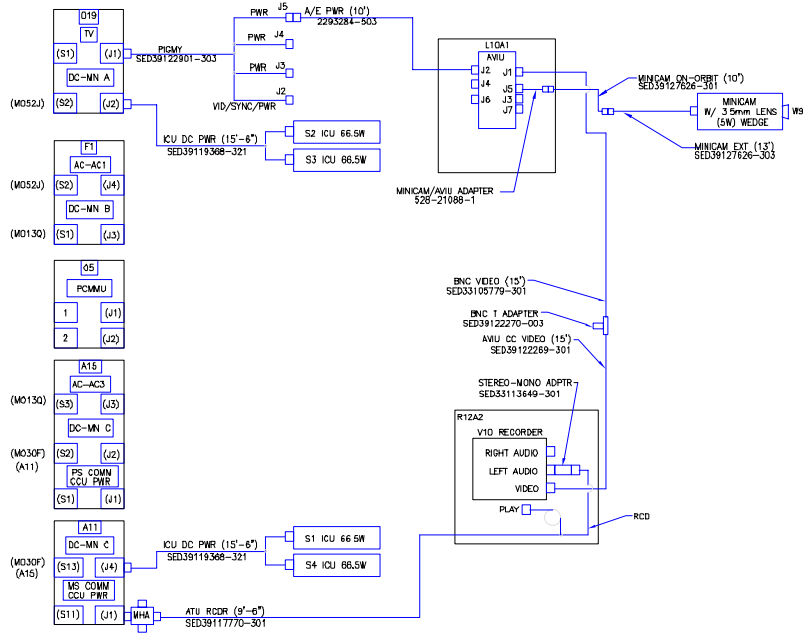
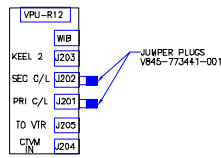
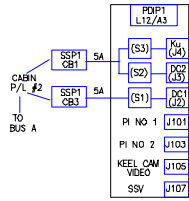
1/9/02



FS 4-5

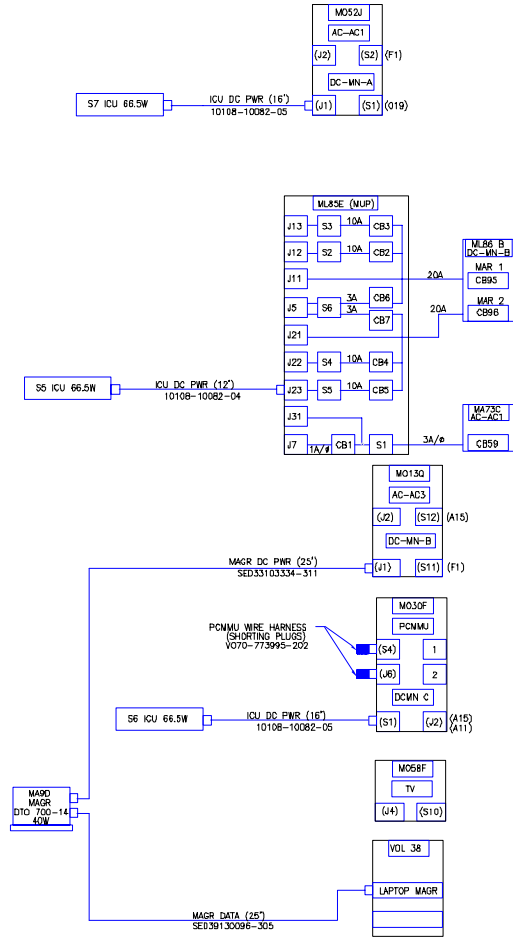
REF/109/FIN

PWR/DATA/VIDEO: ASCENT CONFIG – FLT DECK



PWR/DATA/VIDEO: ENTRY CONFIG – MIDDECK

1/9/02

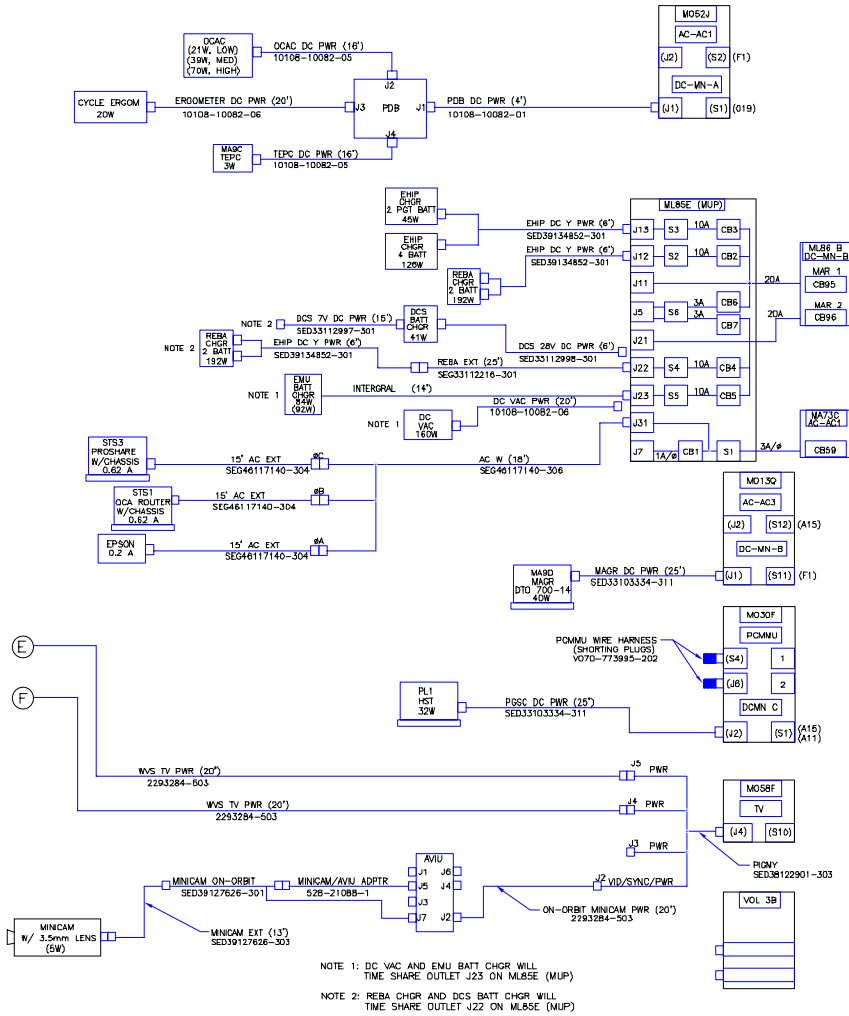


FS 4-9

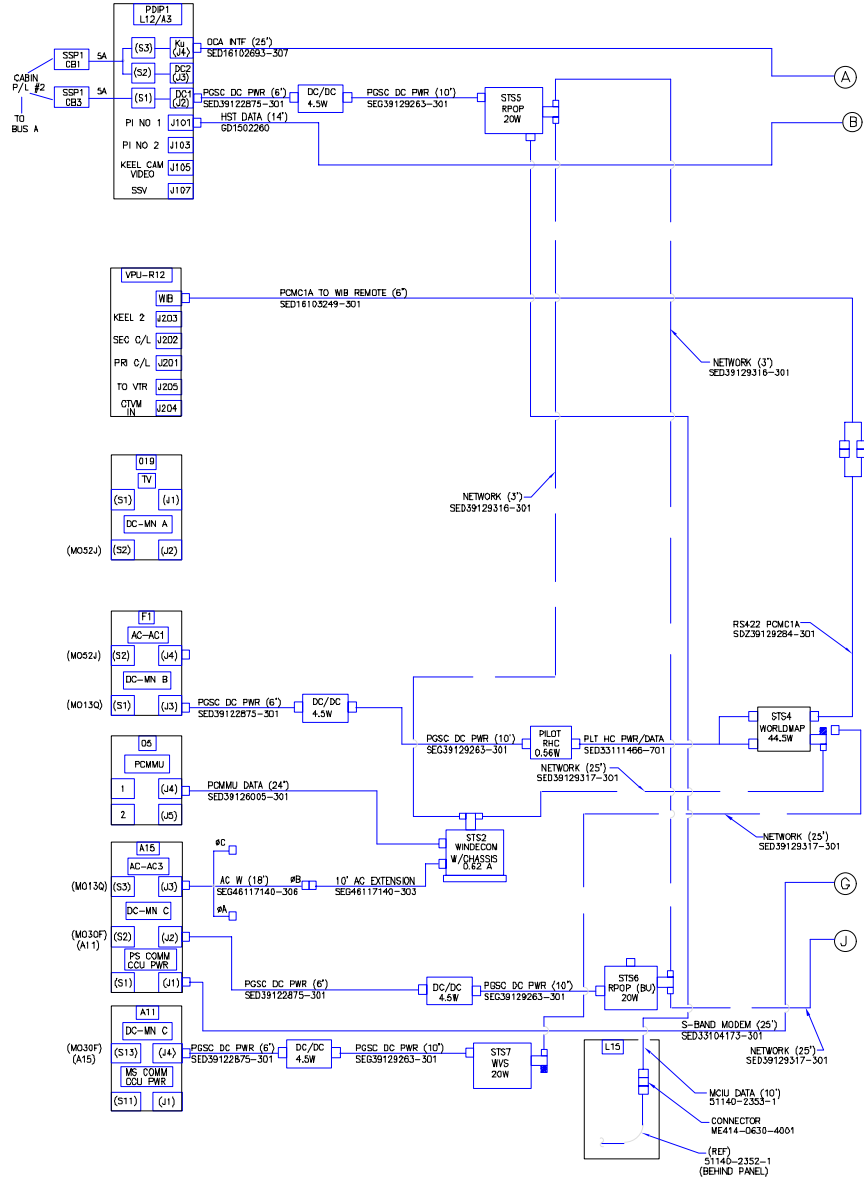
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PWR: ON-ORBIT CONFIG – MIDDECK

1/9/02

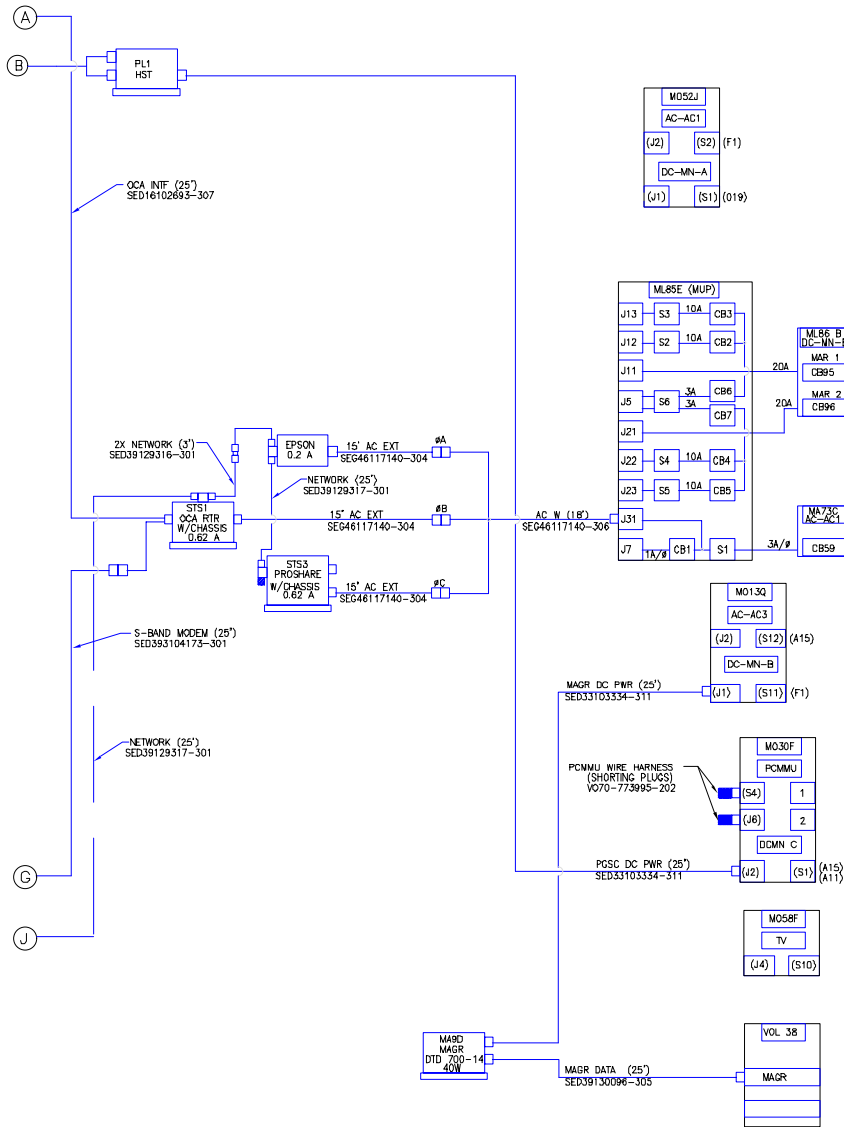


DATA: ON-ORBIT CONFIG – FLT DECK



DATA: ON-ORBIT CONFIG – MIDDECK

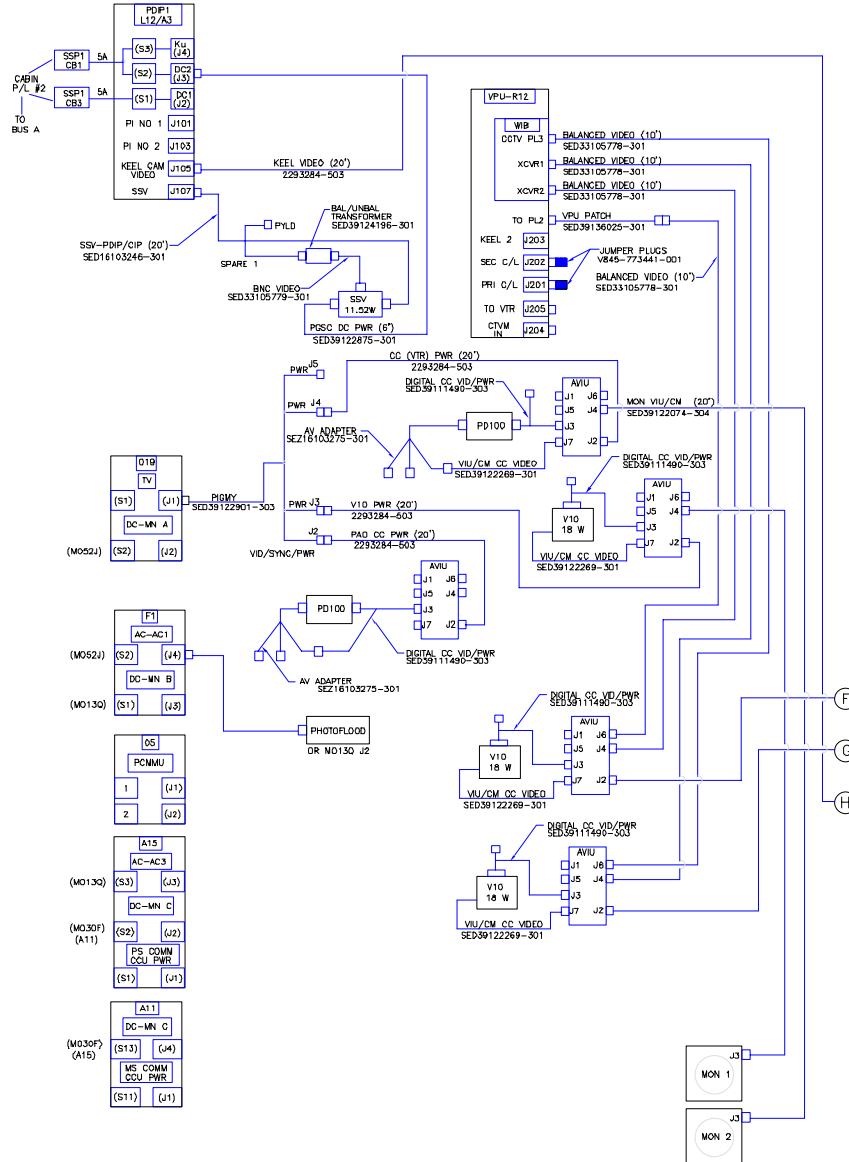
1/9/02



FS 4-13

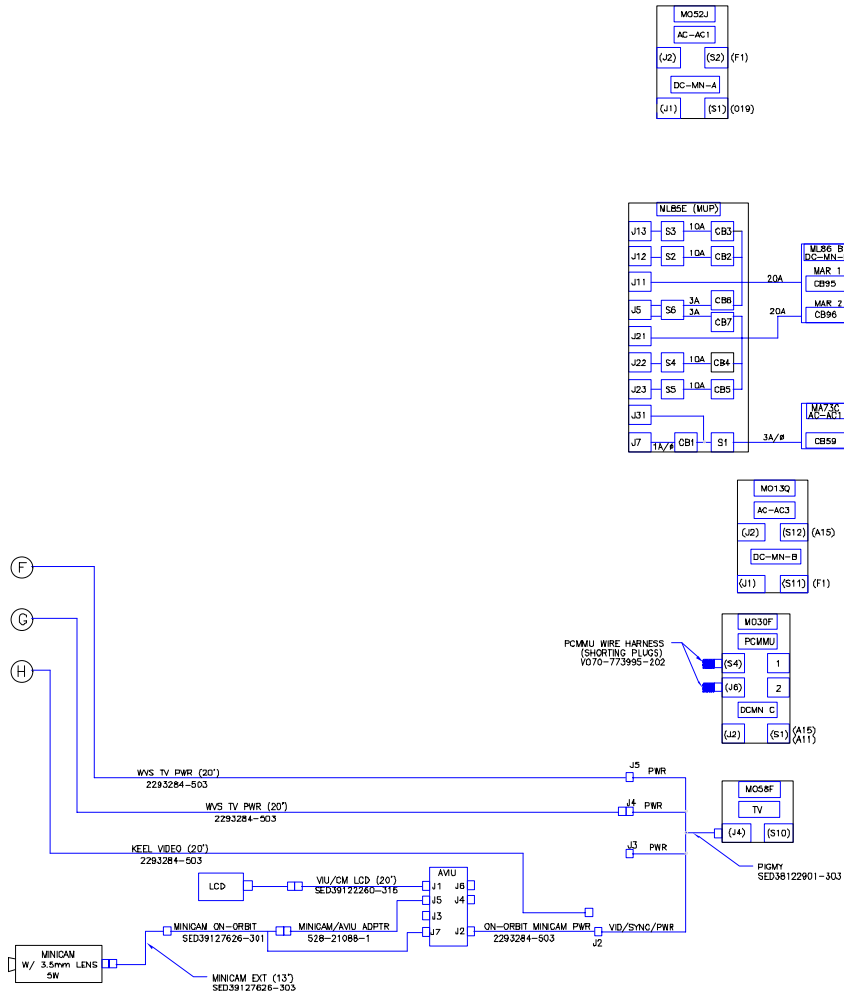
REF/109/FIN

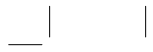
VIDEO: ON-ORBIT CONFIG - FLT DECK



VIDEO: ON-ORBIT CONFIG – MIDDECK

1/9/02





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PLB FLOODLIGHT CONSTRAINTS

PAYLOAD BAY FLOODLIGHT CONSTRAINTS ... FS 5-2

**PLB
FLOODLT**

FS 5-1

REF/109/FIN

**PLB
FLOODLT**

PAYLOAD BAY FLOODLIGHT CONSTRAINTS

GENERIC	STS-109
<ul style="list-style-type: none">● STARTUP < 5 min, otherwise remove pwr● ON > 25 min (includes STARTUP)● OFF > 10 min (unblocked)● OFF > 16 min (blocked)	<p>FWD LIGHTS</p> <ul style="list-style-type: none">● OFF at all times <p>MID LIGHTS</p> <ul style="list-style-type: none">● In a -ZLV (Bay to Earth) or -XSI (Tail to Sun) attitude: max 205 min ON followed by minimum 60 min OFF● In a -ZSI (Bay to Sun) attitude: max 77 min ON followed by minimum 62 min OFF● All other orbiter attitudes: generic constraints apply <p>AFT LIGHTS</p> <ul style="list-style-type: none">● Generic constraints apply to all attitudes

HST DRIVEN PLB FLOODLIGHT RESTRICTIONS

The PLB floodlights must be off for the HST Fixed Head Star Tracker (FHST)-SSP SHUTTER POWER TEST SEQUENCE PRIOR TO THE PCU CHANGEOUT EVA and the FHST CHECKOUT SEQUENCE following the PCU changeout EVA

ENTRY STOWAGE

FLIGHTS WITH RETENTION NET FS 6-2

**ENTRY
STOW**

FS 6-1

REF/109/FIN

FLIGHTS WITH RETENTION NET

AIRLOCK CONFIGURATION

1. Stow clothing and soft goods in airlock in mesh bag or jettison stowage bag
2. Tie bags to standoffs on handrails or EVA attachment point
3. Avoid using standoffs on handrail just inside inner hatch (bags may snag on opening mechanism during ground retrieval)
4. Attempt to tape bags to wall or floor to prevent settling on EMUs

RETENTION NET CONFIGURATION

1. Configure sleeping bags in two stacks
2. Verify retention net is in forward position
3. Return to Houston bags behind retention net should contain only:
 - 35mm Film
 - Ascent FDF
 - DCS Cushion and PCMCIA Cards (9). Remove SCSI Card and stow with DCS Camera
 - One shirt per crewmember
 - DVCam Video Cassettes
 - Crew Shirts Laundry Bag

ITEMS/NOTES

1. Stow the following items:
 - 70mm Film
 - Water Samples in Fresh Food Locker (MF57E)
2. Stow used disposable batteries in double-wrap Ziploc Bags away from heat source. Recommend MF28E

**ENTRY
STOW**

MISSION SPECIFIC ITEMS/NOTES

NONE

CUE CARD CONFIGURATION

FAB USE ONLY

FS 7-1

REF/109/FIN

CUE
CARDS

**CUE
CARDS**

TOP

FAB USE ONLY

FS CC 7-2

REF/109/FIN

REF-1a/109/O/A

STS-109 CONSUMABLES

(reduced copy)

DRY WIPES (9/cm/day)	WMC (pkg)	9 8 7 6 5 4 3 2 1	LiOH Vol (MD52M) (pkg)	8 7 6 5 4 3 2 1
ELBOW BAGS	WMC	16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	Vol B (MA4D)	9 8 7 6 5 4 3 2 1
EMESIS BAGS	WMC	10 9 8 7 6 5 4 3 2 1	Vol B (MA4D)	10 9 8 7 6 5 4 3 2 1
GLOVES (50/pkg)	WMC (pkg)	2 1	Vol B (MA4D) (pkg)	1
			Vol G (MD80R) (pkg)	1
GLOVES, SHOULDER LENGTH	Vol B (MA4D) (pkg)	1		
Sanitation Agent	WMC (bottles)	2 1		
PREFILTERS, CONICAL	WMC	20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	Vol B	20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
TOILET TISSUE (100/pkg) (12/cm/day)	WMC (pkg)	8 7 6 5 4 3 2 1	Vol B (MA4D) (pkg)	2 1
TOWELS (1/cm/day)	WMC	39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	Vol B (MA4D)	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
TRASH BAGS (Coffee Can) (2/cm/day)	WMC (pkg)	10 9 8 7 6 5 4 3 2 1	LiOH Vol (MD52M) (pkg)	8 7 6 5 4 3 2 1
WASHCLOTHS (2/cm/day)	WMC	40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	Vol B (MA4D)	114 113 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
WET WASHES (11/cm/day)	WMC (pkg)	10 9 8 7 6 5 4 3 2 1	LiOH (MD52M) (pkg)	12 11 10 9 8 7 6 5 4 3 2 1
			Vol B (MA4D)	2 1
WET WIPES (11/cm/day – excluding Vol G)	Galley	100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	Vol B (MA4D) (pkg)	9 8 7 6 5 4 3 2 1
			Vol G (MD80R) (pkg)	3 2 1

TOP
BACK OF 'STS-109 CONSUMABLES'

**HOOK
VELCRO**

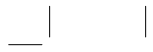
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FAB USE ONLY

FS CC 7-3

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FAB USE ONLY

FS 7-4

REF/109/FIN



Space Shuttle Program
FLIGHT DATA FILE

JSC-48042-109
FINAL



**REFERENCE
DATA**

**STS
109**

Flight Cover (trim bottom to expose tabs)