

## EARTH ORBIT ENTRY VEHICLE PREPARATION

- 1            INITIAL STOWAGE COMPLETED
- 2            CMC POWER UP pg G/2-2
- 3            IMU POWER UP pg G/2-1
- 4            SCS POWER UP pg G/2-4
- 5            P51 - IMU ORIENTATION pg G/6-1
- 6            LOAD DAP  
              V48E 11102, 01111, PRO, PRO, PRO
- 7            DON MAE WESTS & FOOT RESTRAINTS
- 8    ( \_\_:\_\_:\_\_ ) P27 (SV,REFSMAT), MNVR  
                  & ENTRY PAD UPDATES
- 9            ECS CKS  
              02 SUPPLY REFILL pg S/1-7  
              PGA verification, (if suited) S/1-14 ■  
              ECS Monitor Ck pg S/1-5  
(382) EVAP H2O CONT PRI vlv - AUTO  
              EVAP H2O CONT SEC vlv - AUTO  
              SUIT HEAT EXCH SEC GLY - FLOW
- 10           EPS CKS #1, 3, 4 (5 if req'd) pg S/1-2
- 11           SPS CK (If req'd) pg S/1-1
- 12           RCS CKS  
              SM RCS Monit Ck pg S/1-1  
              CM RCS Monit Ck pg S/1-1
- 13           C&W SYS CK pg S/1-20            ■
- 14           CMC SELF CK pg G/2-3

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LOGIC SEQUENCE CK

- (8) cb SECS LOGIC (2) - close (verify)  
cb SECS ARM (2) - close  
cb ELS/CM-SM SEP (2) - close  
ELS LOGIC - on (up)  
ELS - AUTO  
Coordinate next 3 steps with MSFN  
SECS LOGIC (2) - on (up)  
MSFN confirm GO for PYRO ARM as req'd  
SECS LOGIC (2) - OFF  
cb SECS ARM (2) - open  
ELS LOGIC - OFF  
ELS - MAN  
cb ELS/CM-SM SEP (2) - open

16 ( \_\_:\_\_:\_\_ ) P52-IMU REALIGN pg G/6-2 (OPTION 3)

Record gyro torquing angles

R \_\_\_\_\_

P \_\_\_\_\_

Y \_\_\_\_\_

- \*If  $>1^\circ$ , recycle P52 \*  
\*If confirmed, use SCS for\*  
\* EMS entry \*

17

GDC ALIGNIf drift  $>10^\circ/\text{hr}$ , change rate source

18

EMS ENTRY CHECK

- EMS FUNC - OFF  
(8) cb EMS (2) - close  
EMS MODE - STBY  
EMS FUNC - EMS TEST 1 (wait 5 sec)  
EMS MODE - NORMAL (wait 10 sec)  
Check ind lts - off  
RANGE ind - 0.0  
Slew hairline over notch  
in self-test pattern  
EMS FUNC - EMS TEST 2 (wait 10 sec)  
.05G lt - on (all others out)  
EMS FUNC - EMS TEST 3  
.05G lt - on  
RSI lower lt - on (10 sec later)  
Set RANGE counter to 58 nm+0.0

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EMS FUNC - EMS TEST 4  
.05G 1t - on (all others out)  
G-V trace within pattern to lwr rt  
corner @9G  
RANGE ind counts down to  $0+0.2$   
EMS FUNC - EMS TEST 5  
.05G 1t - on  
RSI upper 1t - on (10 sec later)  
RANGE ind - 0.0  
Scribe traces vertical line 9g to  
 $0.28+0.1$   
ALIGN SCROLL TO ENTRY PATTERN (on  
37K ft/sec line)  
EMS FUNC - RNG SET  
G-V scroll assy traces vert. line  
 $0.28g$  to  $0+0.1$   
EMS MODE - STBY

19 Perform EMS  $\Delta V$  TEST & NULL  
BIAS CHECK, Pg G/2-5

20 PRIMARY WATER EVAP ACTIVATION  
GLY EVAP H2O FLOW - AUTO  
GLY EVAP STM PRESS - AUTO  
PRI ECS GLY PUMP - AC1 (verify)

21 SEC WATER EVAP ACTIVATION  
ECS IND sel - SEC  
SEC COOL LOOP PUMP - AC2  
GLY DISCH SEC PRESS - 39-51 psig  
SEC COOL LOOP EVAP - EVAP  
SEC GLY EVAP OUT TEMP - 38-50.5°F  
SUIT CKT HT EXCH - BYPASS 20 sec, OFF  
ECS IND sel - PRIM

22 SET UP CAMERA  
CM4/DAC/18/CEX - BRKT, MIR  
(T11, 1/250/7) 12 fps, MAG GG

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- 23 (-01:00h) CM RCS PREHEAT  
 Note: If sys test mtr 5c,d,6a,b,c,d  
 all read 3.9 vdc (28°F) or more,  
 omit preheat  
 (8) cb RCS LOGIC (2) - close  
 CM RCS LOGIC - on (up)  
 cb CM RCS HTRS (2) - close  
 (101) CM RCS HTRS - ON (LMP Confirm)  
 (20 min or til lowest rdg is  
 3.9 vdc) (Monitor Manf  
 press for press drop) *(NOTE: IF MANF PRESS  
 Drop-Burst Disk Rupture, CM RCS HTRS-OFF, CM ISO VLV-CLOSED, CONTACT MESH)*
- 24 FINAL STOWAGE  
ORDEAL  
 (377) GLY TO RAD SEC vlv - BYPASS (verify)  
 Verify EVA COUCH STRUT disengaged  
 (382) Cool pnl installed  
 Y-Y struts (2) extended  
 Stow Data Box R-12  
 Attach both strut unlock lanyards  
 Check for water in tunnel area  
 Stow gas separator (A8)  
 Stow C1 injector (R6)  
 WASTE MGMT DRAIN vlv - OFF  
 Remove & Stow URA, urine transfer  
 hose and urine filter
- 25 (-00:40m) TERM. CM RCS PREHEAT  
 (101) CM RCS HTRS - OFF (LMP confirm)  
 CM RCS LOGIC - OFF  
 (8) cb CM RCS HTR (2) - open
- 26 PYRO BATT CK  
 (250) cb PYRO A SEQ A - close (verify)  
 cb PYRO B SEQ B - close (verify)  
 DC IND - PYRO BAT A(B)  
 \*If PYRO BAT A(B) < 35 vdc: \*  
 \* cb PYRO A(B) seq A(B) - open \*  
 \* cb PYRO A(B)BAT BUS A(B)TO \*  
 \* PYRO BUS TIE - close\*  
 (275) cb MNA BAT C - close  
 cb MNB BAT C - close  
 DC IND - MNB

27

SYSTEMS TEST PANEL CONFIGURATION

- SYS TEST METER - 5B (BAT RLY BUS  
3.4-4.1 vdc)  
(101) CM RCS HTRS - OFF (verify)  
WASTE H2O DUMP HTR - OFF  
URINE DUMP HTR - OFF  
(100) LEB FLOOD & INTGL LIGHTING - OFF

28

CONFIGURE PNL 8

- All cb's closed except:  
CM RCS HTRS (2) - open (verify)  
DOCKING PROBE (2) - open (verify)  
FLOAT BAG (3) - open (verify)  
SECS ARM (2) - open (verify)  
EDS BAT (3) - open (verify)  
ELS/CM-SM SEP (2) - open (verify)  
PL VENT - open (verify)

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FINAL GDC DRIFT CK (if req'd)

- If drift  $>10^{\circ}$ /hr, Suspect GDC,  
Do not use RSI & FDAI #2

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CM RCS ACTIVATION

- cb SECS ARM (2) - close  
Cue MSFN  
SECS LOGIC (2) - on(up)  
MSFN confirm GO for PYRO ARM(if poss)  
SECS PYRO ARM (2) - ARM  
CM RCS PRPLNT 1&2 tb(2)-gray(verify)  
CM RCS PRESS - on (up)  
RCS IND sw - CM1, then 2  
He PRESS stabilizes at 3300-3500  
psia after 15 minutes  
MANF PRESS 287-302 psia  
SECS PYRO ARM (2) - SAFE

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- 31 (Hybrid only) DOCKING RING JETTISON (if req'd)  
(Deorbit-20:00m) SECS PYRO ARM (2) - ARM  
YAW 45° out of plane  
cb CSM/LM FNL SEP (2) - close  
CSM/LM FNL SEP (2) - on (up)  
SECS PYRO ARM (2) - SAFE

32 P27 & ENTRY PAD UPDATE

HYBRID RCS DEORBIT & ENTRY, pg L/6-1  
SM RCS DEORBIT & ENTRY, pg L/7-1  
SPS DEORBIT & ENTRY, pg L/8-1

## E. O. ENTRY UPDATE

L/5-7

X				X				AREA
X	X	-		X	X	-		$\Delta V$ TAILOFF
X	X	X		X	X	X		R 0.05G EMS
X	X	X		X	X	X		P 0.05G
X	X	X		X	X	X		Y 0.05G
+				+				RTGO EMS
+				+				VIO
X	X			X	X			RET 0.05G
	0				0			LAT N61
								LONG
X	X			X	X			RET 0.2G
								DRE (55°) N66
R	R	/		R	R	/		BANK AN
X	X			X	X			RET RB
X	X			X	X			RETBBO
X	X			X	X			RETEBO
X	X			X	X			RETDROG
X	X	X		X	X	X		(90°/fps) CHART
X	X			X	X			DRE (90°) UPDATE

## POST BURN

X	X	X		X	X	X		P 0.05G
+				+				RTGO EMS
+				+				VIO
X	X			X	X			RET 0.05G
X	X			X	X			RET 0.2G
								DRE $\pm 100$ nm N66
R	R	/		R	R	/		BANK AN
X	X			X	X			RETRB
X	X			X	X			RETBBO
X	X			X	X			RETEBO
X	X			X	X			RETDROG SEC TO MAIN

E. O. ENTRY UPDATE

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L/5-8

## E. O. ENTRY UPDATE

X		-		X		-		AREA	
X	X	-		X	X	-		$\Delta$ V TAILOFF	
X	X	X		X	X	X		R 0.05G	EMS
X	X	X		X	X	X		P 0.05G	
X	X	X		X	X	X		Y 0.05G	
+				+				RTGO	EMS
+				+				VIO	
X	X			X	X			RET 0.05G	
	0				0			LAT	N61
								LONG	
X	X			X	X			RET 0.2G	
								DRE (55°)	N66
R	R	/		R	R	/		BANK AN	
X	X			X	X			RET RB	
X	X			X	X			RETBBO	
X	X			X	X			RETEBO	
X	X			X	X			RETDROG	
X	X	X		X	X	X		(90°/fps) CHART	
X	X			X	X			DRE (90°) UPDATE	

## POST BURN

X	X	X		X	X	X		P 0.05G	
+				+				RTGO	EMS
+				+				VIO	
X	X			X	X			RET 0.05G	
X	X			X	X			RET 0.2G	
								DRE $\pm$ 100 nm	N66
R	R	/		R	R	/		BANK AN	
X	X			X	X			RETRB	
X	X			X	X			RETBBO	
X	X			X	X			RETEBO	
X	X			X	X			RETDROG	SEC TO MAIN

E.O. ENTRY UPDATE

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## EARTH ORBIT BLOCK DATA

L/5-9

X	X					X	X			1-4	AREA
X	X	X				X	X	X	+	20.2	LAT
X	X					X	X		-	148.0	LONG
			:	:		00	1	:	03	58	GETI
X	X	X				X	X	X		242.7	$\Delta V_C$
X	X					X	X			2-1	AREA
X	X	X				X	X	X	+	33.4	LAT
X	X					X	X		-	067.0	LONG
			:	:		00	1	:	21	53	GETI
X	X	X				X	X	X		242.7	$\Delta V_C$
X	X					X	X			2-4	AREA
X	X	X				X	X	X	+	20.9	LAT
X	X					X	X		-	148.0	LONG
			:	:		00	2	:	36	00	GETI
X	X	X				X	X	X		242.7	$\Delta V_C$
X	X					X	X			3-4	AREA
X	X	X				X	X	X	+	29.6	LAT
X	X					X	X		-	148.0	LONG
			:	:		00	4	:	08	50	GETI
X	X	X				X	X	X		242.7	$\Delta V_C$
X	X					X	X			4-4	AREA
X	X	X				X	X	X	+	33.3	LAT
X	X					X	X		-	148.0	LONG
			:	:		00	5	:	41	30	GETI
X	X	X				X	X	X		242.7	$\Delta V_C$

REMARKS: 1) ROLL 90° (RIGHT) ENTRY

2) SEP. BURN 20 MIN PRIOR TO DEORBIT

3) USE 15° LINE 4) DO NOT USE 2-1 FOR LAUNCH AZIMUTHS &gt; 88°

5) DO NOT USE 1-4 FOR LAUNCH AZIMUTHS &lt; 88°

E.O. BLOCK DATA

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L/5-10

## EARTH ORBIT BLOCK DATA

X	X					X	X			+		AREA
X	X	X				X	X	X				LAT
X	X					X	X					LONG
												GETI
X	X	X				X	X	X				$\Delta V_C$
X	X					X	X			+		AREA
X	X	X				X	X	X				LAT
X	X					X	X					LONG
												GETI
X	X	X				X	X	X				$\Delta V_C$
X	X					X	X			+		AREA
X	X	X				X	X	X				LAT
X	X					X	X					LONG
												GETI
X	X	X				X	X	X				$\Delta V_C$
X	X					X	X			+		AREA
X	X	X				X	X	X				LAT
X	X					X	X					LONG
												GETI
X	X	X				X	X	X				$\Delta V_C$

REMARKS:

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# P30 MANEUVER

L/5-11

## SET STARS

R ALIGN \_\_\_\_\_  
 P ALIGN \_\_\_\_\_  
 Y ALIGN \_\_\_\_\_

ULLAGE \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

HORIZON/WINDOW \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

OTHER \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

						PURPOSE
			/			PROP/GUID
+						WT N47
	0	0	.			P <sub>TRIM</sub> N48
	0	0	.			Y <sub>TRIM</sub>
+	0	0				HRS GETI
+	0	0	0			MIN N33
+	0		.			SEC
			.			$\Delta V_x$ N81
			.			$\Delta V_y$
			.			$\Delta V_z$
X	X	X				R
X	X	X				P
X	X	X				Y
+			.			H <sub>A</sub> N44
			.			H <sub>p</sub>
+			.			$\Delta VT$
X	X	X	.			BT
X			.			$\Delta VC$
X	X	X	X			SXTS
+			.	0		SFT
+		.	0	0		TRN
X	X	X				BSS
X	X		.			SPA
X	X	X	.			SXP
	0		.			LAT N61
			.			LONG
+			.			RTGO EMS
+			.			VIO
	.	.	.	.		GET 0.05G

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P30 MNR PAD

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