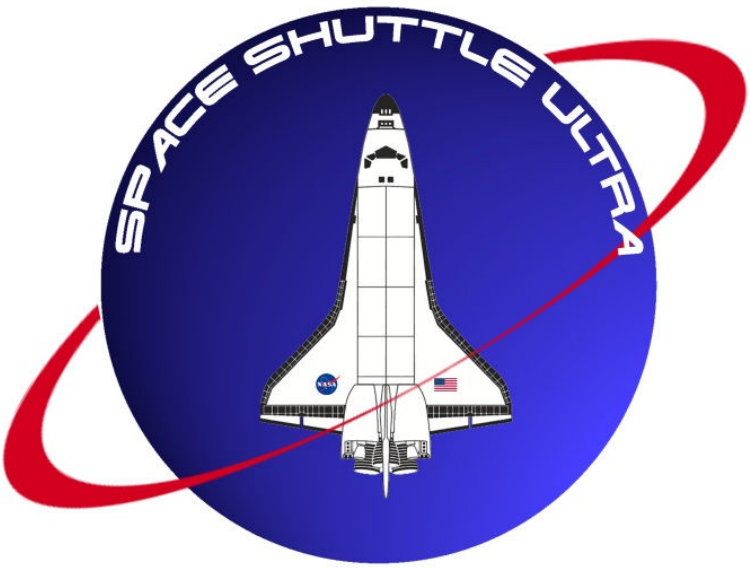
Space Shuttle Program
FLIGHT DATA FILE

Ascent Checklist

Generic
Rev 1.0
Sep 2017



Space Shuttle Ultra 4.2
Orbiter 2010-2016

CONTENTS

NOTE

Ascent contains the nominal procedures from:
Crew Ingress MET(DAY/HR:MIN) – 000/02:25 TO POST OMS2 burn

To properly use this Checklist the Orbiter must be configuered
as per PRE CREW-INGRESS status

PRELAUNCH PROCEDURES

SWITCH LIST FOR HANDOVER/INGRESS

F6U	L HUD MODE	– √NORM
	DIM BRT sel	– mid range
	HUD BRT	– as reqd
F3	HUD PWR	– √OFF
	DRAG CHUTE pb (six)	– √lt off
F8U	R HUD MODE	– √ NORM
	DIM BRT sel	– mid range
	HUD BRT	– as reqd
F4	All pb lts off except:	
	SPDBK/THROT pb	– AUTO lt on
	PITCH pb	– AUTO lt on
	ROLL/YAW pb	– AUTO lt on
F6	MDU PWR (two)	– ON
	BRT sel (two)	– as reqd
	LDG GEAR pb (two)	– lt off
	LDG GEARtb (three)	– √UP
	FLT CNTLR PWR	– ON
	ADI ATT	– √REF
	ADI ERR	– MED
	ADI RATE	– MED
	ABORT MODE	– √OFF
	ABORT MODE pb	– √lt off
	RCS CMD lts (three)	– √off
	AIR DATA	– √NAV
F7	MDU PWR (five)	– ON
	BRT sel (five)	– as reqd
	MAIN ENG STAT lts (six)	– √off
	SM ALERT lt	– √off
	C/W matrix lts	– √off
F8	MDU PWR (two)	– ON
	BRT sel (two)	– as reqd
	LDG GEAR pb (two)	– √lt off
	LDG GEAR tb (three)	– √UP
	FLT CNTLR PWR	– ON
	ADI ATT	– √REF
	ADI ERR	– MED
	ADI RATE	– MED
	AIR DATA	– √NAV

R1	PL PRI MN B,FC3 (two)	– √ctr (tb-OFF)
	PL AUX MN A,B	– √OFF
	PL AFT MN B	– √OFF
	PL AFT MN C	– √OFF
	INV PWR (three)	– √ctr (tb-ON)
	INV/AC BUS (three)	– √ctr (tb-OFF)
	AC BUS SNSR (three) (CRYO)	– MONITOR
	O2 MANF VLV (two)	– √ctr (tb-OP)
	O2 TK1,2 HTRS A (two)	– AUTO
	O2 TK1,2 HTRS B (two)	– √OFF
	O2 TK1,2 HTRS RESET/TEST (two)	– √ctr
	O2 TK3 HTRS (two)	– √OFF
	O2 TK3 HTRS RESET/TEST	– √ctr
	FUEL CELL REAC (three)	– √ctr
	tb (six)	– √OP
	H2 MANF VLV (two)	– √ctr (tb-OP)
	H2 TK1,2 HTRS A (two)	– AUTO
	H2 TK1,2 HTRS B (two)	– √OFF
	H2 TK3 HTRS (two)	– √OFF
R2	MPS PRPLT DUMP (two)	– GPC
	ENG PWR (six)	– ON
	He ISOL A,B (six)	– GPC
	PNEU L ENG He XOVR	– GPC
	PNEU He ISOL	– GPC
	LH2 ULL PRESS	– AUTO
	He I'CNCT (three)	– GPC
R2	APU/HYD RDY TO STRT tb (three)	– √bp
	APU OPER (three)	– √OFF
	HYD MN PUMP PRESS (three)	– NORM
	APU CNTLR PWR (three)	– √OFF
	FUEL TK VLV (three)	– √CL
	BLR CNTLR/HTR (three)	– A
	BLR PWR (three)	– ON
	BLR N2 SPLY (three)	– √OFF
	ET UMB DR CTRLINE LAT	– GND (tb-bp)
	L,R DR (two)	– √OFF (tb-OP)
	LAT (two)	– √OFF (tb-REL)
C2	IDP/CRT PWR (three)	– ON
	MAJ FUNC (three)	– GNC
	SEL (two)	– as reqd
	EVENT TIMER MODE	– DN
	EVENT TIMER CNTL	– ctr
	TIMER SET pb (four)	– 0900
	TIMER	– ctr

C3	OMS ENG (two)	– √OFF
	BFC CRT DISP	– √OFF
	BFC CRT DISPSEL	– √3+1
	AIR DATA PROBE STO (two)	– √INH
	MN ENG LIMIT SHUTDN	– AUTO
	DAP	– √all off
	SRB SEP	– √AUTO
	ET SEP	– √AUTO
	AIR DATA PROBE (two)	– √STOW
O2	CRYO O2 HTR ASSY TEMP sel	– √TK 1
	O2/H2 sel	– √TK 1
	FUEL CELL STACK TEMP sel	– 1
O3	RCS/OMS PRESS sel	– RCS He X 10
	PRPLT QTY sel	– OMS FUEL
	MSN TIME	– MET
O6	S TRK DR CNTL (two)	– √OFF
	ANNUN LAMP TEST	– √ctr
	BUS SEL ACA 1	– √MNA
	BUS SEL ACA 2/3	– √MNB
	GPC PWR (five)	– ON
	OUTPUT 1,2,3,4 (four)	– √NORM
	OUTPUT 5	– NORM (tb-bp)
	IPL SOURCE	– √OFF
	GPC MODE 1,2,3,4 (four)	– RUN
	GPC MODE 5	– SBY
O8	RADAR ALTM (two)	– ON / OFF
R11L	IDP/CRT4 PWR	– ON
	MAJ FUNC	– SM
R13L	PL BAY DR SYS (two)	– √DSBL
	PL BAY MECH PWR SYS (two)	– √OFF
	PL BAY DR	– √STOP (tb-as is)
	RAD LAT CNTL (two)	– √OFF (tb-LAT)
	RAD CNTL (two)	– √OFF (tb-STO)
	KU ANT DIRECT STO	– √OFF
	KU ANT	– √GND (tb-STO)
	MMU GN2 SPLY ISOL VLV (two)	– √ctr (tb-bp)**

A6U	DAP	– √all off
	SENSE:	-Z
	FLT CNTLR PWR	– √OFF
	ADI ATT	– INRTL
	ADI ERR	– MED
	ADI RATE	– MED
	ANNUN BUS SEL	– OFF
	LAMP TEST	– √ctr
	EVENT TIMER SET pb (four)	– as reqd
	MODE	– UP
	CNTL	– √ctr
	TIMER	– √ctr
	PL RETEN LOGIC PWR (two)	– √OFF
	PL SEL	– MON
	PL RETEN LAT (five)	– √OFF (tb-bp)
	RDY TO LAT tb (five)	– √bp
A2	DIGI DIS SEL	– √EL/AZ
	X-PNTR SCALE	– √X10
A7U	MSTR ALARM pb	– √lt off
	PL BAY FLOOD (eight)	– √OFF
	PORT RMS LIGHT	– √OFF
	TV CAMR PWR (five)	– √ctr (tb-OFF)
	VID INP pb (thirteen)	– √lt off
	VID OUT pb (eight)	– √lt off
	CAMR CMD PAN/TILT	– LO RATE
	TILT	– √ctr
	PAN	– √ctr
A7L	(APDS CNTL PNL)	
	CNTL PNL PWR (three)	– √OFF
	HTRS/DCU PWR (three)	– √OFF
	APDS PWR (three)	– √OFF (lt off)
	STATUS lts (thirty-six)	– √off
	PYROS (three)	– √OFF (lt off)
	PYRO CIRC PROT OFF lts (two)	– √off
A4	MSN TIMER sel	– MET
A8U	(This panel may be replaced or deleted if RMS not flown)	
	MSTR ALARM pb	– √lt off
	EE MODE	– √OFF
	MAN CONTR	– √ctr
	tb (six)	– bp
	DIRECT DR	– √ctr
	PARAM sel	– PORT TEMP
	JOINT sel	– CRIT TEMP
	SINGLE/DIRECT DR	– √ctr
	SHDLR BRACE REL	– √ctr (tb-bp)

A8L (This panel may be deleted if RMS not flown)

STBD RMS	– √OFF (tb-STO)
STBD RMS	– (√OFF (tb-bp) if no MPMs present)
RETEN LAT	– √OFF (tb-LAT)
RETEN LAT	– (√OFF (tb-bp) if no MPMs present)
HTR (two)	– √OFF
RDY FOR LT tb (three)	– √gray
RDY FOR LT tb (three)	– (√bp if no RMS flown)
RMS SEL	– √OFF
RMS PWR	– √OFF
PORT RMS	– √OFF (tb-STO)
PORT RMS	– (√OFF (tb-bp) if no MPMs present)
RETEN LAT	– √OFF (tb-LAT)
RETEN LAT	– (√OFF (tb-bp) if no MRLs present)
HTR (two)	– √OFF
RDY FOR LT tb (three)	– √gray
RDY FOR LT tb (three)	– (√bp if no RMS flown)

MEDS CONFIGURATION FOR INGRESS

MDU	Display	Edgekey Menu
CRT1	DPS	DPS
CRT2	DPS	DPS
CRT3	DPS	DPS
CRT4	DPS	DPS
CDR1	OMS/MPS	FLT INST
CDR2	A/E PFD	DATA BUS
MFD1	HYD/APU	SUBSYS STATUS
MFD2	OMS/MPS	SUBSYS STATUS
PLT1	A/E PFD	DATA BUS
PLT2	HYD/APU	FLT INST
AFD1	n/a	n/a

-32:00 (-1:22:00) PASS/BFS TRANSFER PREP

06 √GPC MODE 5 – STBY

C3 √BFC CRT SEL: 3+1
CRT DISP – ON

-30:00 (-1:20:00) OMS GN2 PRESS

C3 OMS ENG (two) – ARM PRESS

WSB GN2 SUPPLY ACTIVATION

R2 √BOILER CTRL/HEATER(three) – ON
BOILER N2 SUPPLY – ON

-20:00 (-1:00:00) OPS 1 LOAD

CRT1 GNC OPS 101 (LAUNCH TRAJ)
CRT2 GNC OPS 101 (LAUNCH TRAJ)
CRT3 BFS, SM SYS SUMM 2

C3 √BFC CRT DISPLAY – ON
√BFC CRT SEL – (3+1)

-16:00 (-56:00) MPS He RECONFIG

R2 MPS He ISOL A,B (six) – OP
√He REG A Press ~800 psi

MPS PNEU He ISOL – OP
√He REG Press ~800 psi

-9:00 (~-15:00) When 'GO FOR LAUNCH' (All)

C2 Set Timer Thumbwheels To 09:00
TIMER SWITCH – SET
√EVENT TIMER MODE is DWN
At T-9'
EVENT TIMER – START

F7 √TIME ind – counting down

NOTE
GLS starts

-8:00 Connect ESS BUSES to FC (GLS √@T-7:24)

R1 ESS BUS SOURCE FC (three) – ON

-7:30

NOTE
Access arm retract

-6:15 APU PRE START (GLS √ @ T-5:25)

R2

BLR N2 SPLY (three)	– ON
BL RPWR (three)	– ON
BLR CNTLR/HTR (three)	– A
√HYD CIRC PUMP (three)	– GPC
√APU FU TK VLV (three)	– CL
√APU SPEED SEL (three)	– NORM
√APU OPER (three)	– OFF
√HYD MN PUMP PRESS (three)	– LO
APU CNTLR PWR (three)	– ON
APU FU TK VLV (three)	– OP
√APU/HYD RDY tb (three)	– gray

-5:00 APU START (GLS √ @ T-4:05)

R2

APU OPER (three)	– START/RUN
√HYD PRESS ind (three)	– LO green
√APU/HYD RDY tb (three)	– bp
HYD MN PUMP PRESS (three)	– NORM
√PRESS ind (three)	– HI green

ASCENT PROCEDURES

NO COMM MODE BOUNDARIES

NEG RETURN (104)	**8200**
PRESS TO ATO (104)	**10800**
SE OPS 3 (109)	**12300**
SE ZZA (104)	**14300**
PRESS TO MECO (104)	**14900**
SE PRESS (104)	**17600**
NEG MRN (2 @ 67)	19800
LAST PRE MECO TAL	23000
LAST TAL	
YJT	19900
YYT	20200
YQX	22000
IKF	23700
INN	24200
BEJ	24300
FFA, MRN	24400
KBO	24600
ESN	24900
ZZA, KKI	25100
FMI, JDG	25200

2 ENG ZZA (104)	**5900**
ABORT TAL ZZA (4)	
EO VI	
SE OPS 3 ZZA (109)	**(4)**
SE ZZA (104)	**(4)**
2 ENG MRN (104)	**5800**
ABORT TAL MRN (3)	
EO VI	
SE OPS 3 MRN (109)	**(3)**
SE MRN (104)	**(3)**
2 ENG FMI (104)	**6200**
ABORT TAL FMI (29)	
EO VI	
SE OPS 3 FMI (109)	**(29)**
SE FMI (104)	**(29)**

ASCENT PROCEDURES

R180	LVLH
.84M	√P_c → 72%
1.17M	√P_c → 104%
Pc < 50+5 s	√SRB SEP (Backup AUTO SEP 2:21)
	√TMECO

* If NOT STABLE (10 sec):
* NO COMM – CSS & MAN THROT

MM103+10 s — √OMS assist
Close suit O2, open visor

3:00 — √EVAP OUT (T < 60)
* If Systems ABORT reqd:
* RTLS at 3:40 or
* TAL Select prior to [23000]
* Otherwise Manual MECO [23700]

V_I = [13.2K] — √Roll Heads Up
* If Man Throttle (3 eng):
* Man Shutdn at [25700]
* If 1 eng:
* [TRAJ] √SERC ON
* When MPS PRPLT = 5%:
* MAN THROT
* When MPS PRPLT = 2%:
* MIN THROT (Pc → 67%)
* AUTO THROT

MECO — √V_I = [25819]

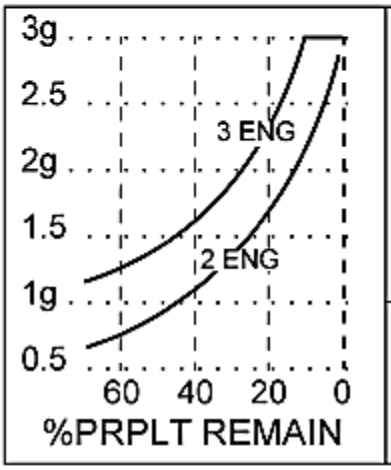
MECO+20 s — √ET SEP
* If 'SEP INH':
* ET SEP – MAN
* If Rates > .7,.7,.7:
* MPS PRPLT DUMP SEQ – STOP
* Null rates
* ET SEP – SEP
* Post ET Sep -Z xlation:
* MPS PRPLT DUMP SEQ – GPC
* If Rates < .7,.7,.7:
* Assume Feedline Fail
* If VI < [25760]:
* OPS 104 – PRO (√BFS 104)
* NOTE: Expect – 'Illegal Entry' (PASS)
* 'Illegal TIG' (BFS)

► **MM104+2 s** — If ET Sep complete and HA > [72]:
+X xlation for 11 sec
√TGTS
√ASC PKT for failures
If OMS 1 not reqd:
OMS ENG (two) – OFF
Go to POST OMS 1

ASCENT ADI - NOMINAL

TIME	θ	H	$\dot{H}$
0:30	69	9K	665
0:50	61	26K	1001
1:10	52	51K	1439
1:30	39	84K	1900
1:50	30	126K	2198

(335 OCFR3 CY)



HOOK VELCRO

HOOK VELCRO

-STAGING-

V_I	θ	H	$\dot{H}$
6	19	219K	1701
7	16	276	1253
8	13	311	906
9	12	333	625
10	9	346	396
12	6	356	58
14	9	355	-149
16	25	350	-232
18	23	344	-267
20	21	339	-217
22	19	337	-104
24	17	337	66
25819	13	345	272

ASC-14a/335/A/A

OMS 1 BURN

OMS 1 TARGETING

If TIG LATER THAN MECO + 6 min:
MECO + 4 min:
APU shutdn (if time permits)

If 1 OMS ENG FAIL and VTOT > 500:
Burn good OMS + THC +X at TIG

C3 DAP – AUTO/DISC

CRT1 GNC OPS 104 PRO (OMS 1 MNVR EXEC)

LOAD TGT DATA

Trim Load (*1 eng)
P – ITEM 6 = + 0.4 *(+ 0.4)
LY – ITEM 7 = - 5.7 *(+ 5.2)
RY – ITEM 8 = + 5.7 *(- 5.2)

Select TIG – ITEM 10 + __ / __ : __ : __

Load TGT PEG7
ΔVx – ITEM 19
ΔVy – ITEM 20
ΔVz – ITEM 21

LOAD – ITEM 22 EXEC
√TGT PEG 7 (ΔVx, ΔVy, ΔVz , ΔVtot)
TIMER – ITEM 23 EXEC

√CTRL PWR (two) - ON
√OMS ENG (two) - ARM/PRESS

-00:15 CRT1 EXEC

00:00 TIG; start watch (√Pc, ΔVTOT, ENG VLVs)

CUTOFF
+00:02
C3 OMS ENG (two) – OFF
Trim inplane X,Y residuals < 2 fps

POST OMS 1 BURN PROCEDURES

ET PHOTO MANEUVER/MPS DUMP

If OMS 1 Burn performed, go to

POST BURN STATUS

+X and Pitch Mnvr:
At MECO + 6 min: (14:23 Nom)
ET SEP – SEP
At MM104 + 2 sec
+X xlation for 11 sec
At OMS 1 TIG: (16:05 Nom)
Pitch up at 2°/sec until ET in O/H window (P ~110°)

Go to MPS DUMP complete

If NO-GO for Photo Pitch Mnvr, go to MPS DUMP complete; do not pitch

MPS DUMP start (MECO + 2:03)

At OMS 1 TIG + 30 sec: (MECO + 2:33)
(10:56 Nom)

C3 DAP – INRTL: R (DISC), P (PULSE), Y (DISC),
Orbiter pitches up
Control pitch rate 2°/sec to 3°/sec
If no pitch rate, go to MPS DUMP complete

When ET in O/H window (MS call or P ~90°):
P – DISC
Adjust pitch photo att as reqd for MS

MPS DUMP complete

√BDY FLP pb – lt off (MECO + 4 min) (12:24 Nom)
If no pitch rate,
P – DISC
Pitch up at 2°/sec until ET
in O/H window (P ~85°)

POST BURN STATUS

ALPHA MANAGEMENT (if reqd)

If underspeed (ATO or AOA-S) OMS 1
and Post OMS 1 HP <75 nm:
Maneuver to LVLH R000, P340, Y000
(maintain LVLH P = 0 +/-20)
After 10 min:
Maneuver to LVLH P = 340
After 10 min:
Maneuver to Burn Attitude

When MPS dump complete:

F6,F8		FLT CNTLR PWR (two)	– OFF
C3		DAP	– AUTO

APU/HYD SHUTDN

R2		√APU AUTO SHTDN (three)	– ENA
		BLR PWR (three)	– OFF
		BLR N2 SPLY (three)	– OFF
		APU OPER (1,2,3; 5 sec interval)	– OFF (MA)
		APU FU TK VLV (three)	– CL
		√Shutdn (HYD PRESS < 200)	
		APU CNTLR PWR (three)	– OFF
		√HYD MN PUMP PRESS (three)	– NORM

FES & HEATER ACTIVATION

R1		O2 TK1,2 HTRS B (two)	– AUTO
		H2 TK1,2 HTRS B (two)	– AUTO

AC BUS SNSR

R1		AC BUS SNSR (three)	– OFF (1 sec), then AUTO TRIP

MAJOR MODE CHANGE

CRT1/2	GNC	OPS 105 PRO (OMS 2 MNVR EXEC)

OMS 2 BURN

OMS 2 BURN SETUP

CRT1 TRIM LOAD – ITEM 6 +0.4 -5.7 +5.7 EXEC

For single eng burn (good eng):

TRIM LOAD LY	– ITEM 7 +5.2 EXEC
TRIM LOAD RY	– ITEM 8 -5.2 EXEC
OMS L	– ITEM 2 EXEC
OMS R	– ITEM 3 EXEC

For RCS burn:

RCS SEL	– ITEM 4 EXEC

√Targets, OMS TARGETS

LOAD	– ITEM 22 EXEC
TIMER	– ITEM 23 EXEC

MPS ISOL

R2

MPS He ISOL (six)	– GPC
MPS PNEU He ISOL	– GPC
√He I'CNCT (three)	– GPC

25:00 MPS PWRDN

R2

MPS ENG PWR L (two)	– OFF
MPS ENG PWR CTR (two)	– OFF
MPS ENG PWR R (two)	– OFF

ET UMBILICAL DOOR CLOSURE

WARNING
ET CTRLINE LATCHES must be stowed prior L,R DR closure to prevebnt door drive damage

R2

ET UMB DR MODE	– GPC/MAN
CTRLINE LAT	– STO
√After 6 sec, CTRLINE LAT tb	– STO
CTRLINE LAT	– STOP
L,R DR (two)	– CL (tb-bp)
√After 24 sec, L,R DR tb (two)	– CL
L,R LAT (two)	– LAT (tb-bp)
√After 6 sec, L,R LAT tb (two)	– LAT
L,R DR (two)	– OFF
L,R LAT (two)	– OFF
MODE	– GPC

If FRCS reqd,

Go to <u>OPS 1 RCS BURN</u> (p.22)

<u>OMS 2 BURN ATTITUTE MANEUVER</u>

F6,F8	√ADI ATT (two)	– INRTL
	ATT RATE (two)	– 1
CRT1	MNVR – ITEM 27 EXEC (*)	
CRT3	BFS GNC SYS SUMM 2	

TIG-5 Go to **<u>OMS 2/ORBIT OMS BURN</u>** Cuecard (p.21)

OMS 2/ORBIT OMS BURN

1.LOAD TGT DATA

CRT1 GNC OPS 105 PRO (OMS 2 MNVR EXEC)

TV ROLL
If Posi Heads Up – ITEM 5 + 0 EXEC
If Posi Heads Dwn – ITEM 5 + 180 EXEC

Trim Load (*1 eng)
P – ITEM 6 = + 0.4 *(+ 0.4)
LY – ITEM 7 = - 5.7 *(+ 5.2)
RY – ITEM 8 = + 5.7 *(- 5.2)

2.PERFORM OMS BURN

CRT1 √ENG SEL

C3 √DAP AUTO (PASS)/DISC

TIG-4 F6/F8 ADI RATE (two) – MED (1 deg/sec)
FLT CNTLR PWR (two) – ON
√DAP – AUTO(PASS)/DISC
√GMBL TRIM

TIG-2 C3 SEL OMS ENG(s) – ARM PRESS (√P VLVs OP)
If P VLV CL: Aff OMS ENG – OFF

WARNING
Do not burn aff engine if:
He TK P < 640

TIG-00:15 CRT1 EXEC

00:00 TIG: start watch (√Pc, ΔVTOT, ENG VLVs)

CUTOFF
+00:02 C3 OMS ENG(s) – OFF

Trim Residuals:

OMS2	TAIL ONLY CNTL	Orbit
VGO X < 0.2 fps VGO Y,Z < 2 fps	VGO X < 0.2 fps	All axes < 0.2 fps

OPS 1 RCS BURN

AFT RCS

√RCS BURN CONFIG:

	OMS TK ISOL (all)	– OP	
	L(R) OMS XFEED (two)	– OP	switch at
	R(L) OMS XFEED (two)	– CL	½ ΔVTOT
	AFT L,R RCS XFEED (four)	– OP	
	AFT L,R RCS TK ISOL (six)	– CL	
TIG-2	L,R OMS He PRESS/VAP ISOL A	– OP	
	Wait 2 sec		
	L,R OMS He PRESS/VAP ISOL B	– OP	
CRT	√MM105		
F6/F7	CTRL PWR (two) - ON		
	√BURN ATT (INRTL) then REF, pb – push		
	√RCS SEL		
C3	DAP: INRTL/DISC		
00:00	+X		
	Mainatain PITCH ATT ERR +/- 3°		
	Monitor OMS data		
	Monitor ΔVTOT		
CUTOFF	Release THC		
	CTRL PWR (two) - OFF		

FWD RCS

FRCS BURN PREP
Load DUMMY target for FRCS attitude
RCS SEL – ITEM 4 EXEC
TIG @ TTA = 2:00 or as reqd
ΔVX = -2.1 (ITEM 19)
ΔVY = 0 (ITEM 20)
ΔVZ = +1.0 (ITEM 21)
LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC
TIG-10 Auto Mnvr to ATT
When in attitude:
ADI ATT – REF (push)
Load External ΔV Burn Target
ΔVX = +80
ΔVY = 0
ΔVZ = 0
LOAD – ITEM 22 EXEC
TIMER – ITEM 23 EXEC
√VGOX = negative
√VGOY = 0
√VGOZ = +21 ± 2
√REF ball – 0,0,0

NOTE
Error needles invalid during burn
Burn time = ~2X TGO
TGT Hp = 85 for ASCENT

-00:30

F6,F8 CTRL PWR - ON

C3 DAP: INRTL/DISC

00:00 -X (THC)

CUTOFF CUR HP = TGT HP _____, release THC

F6,F8 CNTRL PWR (two) - OFF

POST OMS 2 BURN PROCEDURE

F6/F8 FLT CNTLR PWR (two) – OFF

C3 OMS ENG(two) – OFF
√DAP: AUTO

MAJOR MODE CHANGE

CRT1 GNC OPS 106 PRO (OMS 2 MNVR COAST)

Go to **POST INSERTION CHECKLIST**

ASCENT CHECKLIST

STS ALL

BACK COVER