

FLIGHT DIR MISSION LOG		DAY	REV	PG (1)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Block #1			
(1)	Picked up Count on Time @ 10:pm COT			
	T-9 hours - Gave an MCC-60 for IT -			
(2)	AT T-8:45, Passed IP data - On at			
	2 off at 26 for EOS plots, 15 fps			
	V _{it} - GO.			
(3)	Spacecraft Subjects -			
	A) H ₂ Tanks will be each about 1% above launch redline at L/O. Everybody working that one -			
	B) Chuck Lewis pointed out to me the hi. rates at Ascent pitchover. Will discuss with Caplan and Backups Crew.			
	Crews must have been seeing rates at CMS. Will check.			
(4)	Asked Network about precautions due to storm - we are on diesel power.			

FLIGHT DIR MISSION LOG		DAY	REV	PG (2)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
(5)	CCATS driven lites are blinking occasionally - Cmd panels of FC/MO Switch - 			
	NOETO - Running with machine - will try to catch intermittent problem.			
	Check for final status AT T-2 hour.			
T-8:24 (6)	Ozzie Covington advised me of something he thought we might hear about. GSFC has all four data lines now thru Intelsat 2, the earlier satellite. There have been commitments made (South American TV) on the basis of Intelsat 3. Comsat tried to demonstrate to GSFC that they could provide all our and others at same time. Test was scrubbed, Ozzie says it would			

FLIGHT DIR MISSION LOG		DAY	REV	PG (3)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	be overboarded. So South American TV folks			
	may gripe up thru diplomatic channels			
	and This is background in case we			
	hear of any of that.			
<u>TF 8:14</u>	I've discussed The FC Mgmt writings -			
	OK - but I stumbled over the last sentence			
	until I started to ask about L.O.T. This says			
	we have a systematic problem, and should			
	be NO GO for L.O.T. - Not sure about that -			
★	Comments from you - colleagues? -			
★	How about for TLI, Cliff? -			

FLIGHT DIR MISSION LOG		DAY	REV	PG (1)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
T-7:52	Weather looks good all over -			
	Cape 15K ceiling / broken -			
	10 Vis.b.			
	LgT/vrbl			
	So That's all great - Abort areas clear.			
	6-4 flame 2000 broken			
	Great -			
T-7:50 -	Awhile back, we gave a go for Wingo			
	loading -			
T-7:15	FT47 CMD CRS GO			
	ALL DONE -			
T-7:08	T- 9HR BALLOON -			
	EOS LAND IP - 370 21			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				6
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
T-6:04	1V KSC people have occasionally discussed the Aux pump (4B) hydraulic pressure oscillating (3607-3594 psi.) IPCM			
	it is 12psi and my people (Bill Harris) feel it is OK but Cope is watching. Does not sound like a real problem			
T-5:55	Rerun the Test w/ SIVS from MICA & it all worked OK - No ACDS interference - How about that?			
T-5:44	Network does not think he will have satisfactory explanation of this ACDS funny. He recommends going ahead nominally. Use ACDS for the			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				7
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Launch phase. And the only special			
	data (unique) mit is the SIC -			
	Once past first stage, you could lose ADS			
	and not notice since the the format			
	including the STT can be played from any			
	site.			
T-5:	Open Item on CM erasable			
	Landing radar mounts -			
	GACC To call FSB -			
	Must be closed out before LOC use -			
	Position of ant relative to CM body -			
T-5:02	Holding LHR loading for OIS problem -			
	20-30 minutes impact on LHR loading -			
	Clock will continue to count while they			
	send somebody to pool to clear OIS			
	problem.			

SITE/ACQ/LOS

FLIGHT EVENTS/HISTORY/BRIEFING

T-4:45

Passed padgate - So getting closed to
picking up with CH₂ Lossing

T-4:44

 Go for CH₂ load -

T-4:31

Old AZ is correct -

T-4:30

3 NON-VERIFIES ON ETHERNET STATUS

T-4:13

BSE DATA PROBLEM. - They had the
some problems as they have had on previous
flights with special processing. However,
after a recycle of the MKS Imptv, it was OK -
So - You might have a problem if you
want to do a NAV or TARGET UPDATE

FLIGHT DIR MISSION LOG		DAY	REV	PG
				9
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
- 4:10	T-6 hour balloon			
	No Land IPS w EOS shorts -			
	Great -			
	VAN			
<u>T-4:07</u>	CMD PROBLEM WITH VAN VIA SATELLITE -			
	CHECKING HF -			
	ONCE KNOW HF IS GOOD, WILL TRY TO GO			
	BACK TO SATELLITE.			
<u>T-4:04</u>	<u>GUID</u> EMERGENCY ALL GO ON CMC -			
T-3:42	BSE estimates			
	5 minutes behind in loading - can pick			
	up in BSE			
T-3:30	Ho LOING -			
	<u>NETWORK 1 -</u> No JOY ON HF VAN CMD I/F			
	MAY NOT GET ANY AT ALL - NO VAN			
	CMD - BSE, GUID, ECOM ADVISED			
	GO FOR CREW TO LEAVE MSOB -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				(10)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	IFCMD TIE WITH VAN DOES NOT			
	IMPROVE, YO U PROBABLY OUGHTO LIFT OFF			
	IN MODE 1 FOR LV CMPS.			
	Some Tape recorder changes			
	for no VAN Cmd I/F. EECOM writing up.			
8:58Z	LH2 LOAD COMPLETE -			
	LH2 RELIEF SETTING TEST -			
	SPECIAL TEST TO GET NUMBERS -			
9:00Z	GO on VAN HF CMD I/F -			
9:22Z	MADRID TM CMDR FAULTING			
9:23Z	CLATS LITES BLINKING			
	FCL70, ASORT ASASCE LITES -			

FLIGHT DIR MISSION LOG		DAY	REV	PG (11)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>9/478</u>	<u>Net</u> - Giving bad adapter to Conchine -			
	Trying to get configured with 2 good			
	CP's - 15 minutes ETD -			
<u>9/522</u>	VAN IF NOW ON SATELLITE			
<u>9/562</u>	Can not use (peripherals			
	To work on			
	<u>NET</u> - Now - 1 hour estimated <u>was 1</u>			
★	Standby (Bad adapter to see if can			
	fix -			
<u>10/022</u>	Court Picked up on Time at T-3:30			
★	6H Leak in some Valve @ 200' level -			
	Appears to be getting worse -			
	Same Valve as on CPPT -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				12
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
T-3:16	Lost all satellite connectivity TO VAN - Restraining on HF			
	1-2-4 Net 3 up on HF BVAN -			
<u>T-3:13</u>	BSE Xfer 4 Hz line but 6 Hz purge to			
	valve is leaking - Someone wet CPT - Breng Crew to pad -			
-3:12	VAN back on satellite			
-3:05	Crew has departed +150B -			
<u>-3:02</u>	Modried Crypt - GO ✓			
-2:58	Timing problem w/ PCM - 10 minutes to work unit -			
	Report to COM - got 6 Hz - No launch TF -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				13
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Green S-1A #1			
2:15	Voice Checks - 60			
2:12	Cnd checks -			
T-2+00	Green Team on			
-1+57	Rso voice Checks &			
	Eng lite - lite			
	#3 only for today.			
1+45	Or unbalance of			
	4% wanted to 5%			
	ECOM.			
1+35	go for final periscope			
1+30	just motion ok			
1+16	BSF Cnds okay.			
1+15	3+15 no IP's			
	- EDS			
	LOM Roger			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				14
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
-1100	asm decoder on.			
T-53	had to send Cmd.			
T-50	Launch site forces in Area - recovery			
T-39	all go for Terminal Count.			
T-30	go to CRTS			
T-25	final wind data IP's in water			
T-15	CTE verified - ok			
T-9	Comm checks good			
	fin'g Azimuth			
	72 03 34			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				15
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Launch			
	V75 Verified			
	prepress DIVB SIC cooling			
	SII BTs. ✓			
	SIC			
	Int pure			
	BRR			
	roll ok Thrust			
	IP			
	RSO			
	pitch program			
	IB			
	RSO in water			
1+00	good			
	1c 1+55			
	Stg go			
	2+16 1B0			
	0B0 2+43			
	1Cn pu Thrust			
	62nd plane			
	Turn left			
	1Bm			
	Visual go:			
	Steering engaged			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				16
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Cabin 5.9			
4+00	all go			
	A-11 Roger			
	Trig & guid go			
	let step pass			
5+00	go			
	A-11			
	SIVB to COI 5+25			
6+00	go			
	A-11			
	gr bal			
	8+17 level sense			
	9+11 SII C.O.			
7+00	go			
	A-11			
	7+41 IBO			
8+00	go			
	pv level sense			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				17
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Thrust 90			
8+51	90 for str mode 1V 9+00			
	9+11 c.o.			
	192 Thrust Traj.			
	16m			
10+00	90 A-11			
	pred c.o. 11+42			
11+00	90 A-11			
	11+42 SECO			
	101.4 X 103.6			
	12+06 Confirm 90			
	RSO Sefed			
	pays & logic Sefed			
	primals off			
	Configured for coast			
	orbit state			

FLIGHT DIR MISSION LOG		DAY	REV	PG 18
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
Wiseatin	99.7 x 102.5			
Plus	based on IV			
<u>CYI</u>				
	Z Torque +0.22			
	Recommend alignment.			
	Wiseatin Check list complete			
	A-11 Roger on P-52			
	has call reminder of			
	Simplex A			
	All Systems go			
	Retro - block data good			
2700	105 x 103 from CYI			
	FIDO			
	Guid - both go			
3400	everybody go			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				19
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
Low				
rev 1	A-11 reading stripless			
37+04	gone him orbit			
	Coming into Terminator			
	Los call A-11 (oper)			
43+45	2 8 to 9 fps in			
	launch - no update			
	to PIPA - Guidance.			
CRO				
rev 1	SLV - nominal			
52+14	S/c - good			
	A-11 land & clear			
	Alignment			
	N 71 30 & 37			
	0001			
	P3 00016			
	+ 00033 48+15			
	+ 00032			
	OK, star			
	Guidance go on these			
	I tell Clara Parker he			
	lucked out			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				20
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
CRO	Turn up S-band			
Continued				
HSK	1+00+54 AOS			
	103.8 X 106.5 CRO			
	Data			
	radio check S band			
	beautiful			
	Ecom not seeing expected			
	ST across radiator			
	gave him CDS AOS/LOS			
	A-11 <u>will transmit</u>			
	<u>TV</u>			
	Secondary loop check over HSK			
	was go - Ecom			
1+24	Guid DRV Checks on			
	10 are go			
	Out of plane on CSM			
	with in limits - good			
	as backup			
	PAD in work			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				21
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
1+25	retro - pad soon			
1+28+22	SLV go thru BYM			
BYM	A-11 load & clear			
CONUS	rads look good			
rev 1	TV did not work			
	apparently did not			
	get modulation on			
	FM downlink.			
★	reading up pads			
###	CDS got 1 min of			
	modulated data - nothing			
	useful			
	TLI +90 pad			
	TLI +5 P-37			
A-11	docking probe probe			
	SM Hot fire			
	C&C 1 pack Temp			
	low 102 mi 110			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				22
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	HOSC/90 99% probability			
A-11	unable to hear transmitter			
	call on Strip Charts			
	We saw all of them			
early	{ Logic arm & go for			
A	{ new arm. Ecom			
	A-11 roger			
	pro & accept			
	TLI pad - readback			
	Correct			
	loads in guidance			
	his computer			
A	A-11 probe extended			
	Verify sm RCS Htar			
B/C	B in primary			
04I	reading 101 (leg now			
rev 2	A-11 Htar off - now			
	in primary			
	coming up			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				23
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Guidance - larger out of plane CSU than we like - <u>unqualified</u> <u>go</u>			
	Tongue Angle look <u>good</u>			
	Guid - HOSC confirms our data			
TAN				
2+09+18	Houston standing by - 700			
rev 2	Joy to TAN - good old TAN			
	A-11 roger - <u>got him</u>			
2+12	A-11 pyro's armed			
	LOS call A-11 roger			
OKD				
rev 2	Status for TLI SLV - 90			
2+25+30	Guid - 90			
	A-11 load & clear C&C - 90			
	Elev - 90			
	Suzer - 90			
	FIDO - 90			
	Retro - 90			
	Network - 90			
	A-11 roger on 90			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<i>TLI Burn</i> 	Verb 66 verified by Guidance			
	TLI burn & told him about			
	ARIA Cerecage			
	ARIA #3 good voice			
	TLI - T.b 6 on time			
	repress complete			
	Chilldown			
	P-47			
	Main and computer down			
	leave on TLM			
	burner shutdown nominal			
	all go ullage on			
	19m in thrust go			
	16m converged			
	T+1+00 Traj & good good			
	Stage good			
	PV Shift Thrust good			
	Red. C.O. Nominal			
	T+3+45 A-11 go			
	lost CDP at Mainway			
	T+5+00 A-11 go			
	2+50 + 06 C.O. log			
		but delay		

FLIGHT DIR MISSION LOG		DAY	REV	PG 24
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	35579			
	h & h			
	LMS + 3.3			
	FIDO radar data now			
2452	BSE			
	3 + 05 + 03 now start			
	3 + 09 + 20 now complete			
	3 + 15 + 03 Sep			
2455	Saturn gave magnificent ride A-11 CDR			
	no complaints with any of these stages			
	all BLV functions normal			
3+03	all SLV functions normal			
	FIDO - preliminary indicators of good outoff			
	SLV started now			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				25
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Pyro A armed no B			
	yet A-11 confirmed			
3+09	mde complete on SLV			
	Problem thru BDS			
	now on MICA			
	intend to sep on A			
	only			
	Pyro B armed on			
3+14+40	reconnaissance - ????????			
	go for sep			
3+17+10	SLA sep + X confirmed			
	pi & See Quad B went			
	backpole at Sep			
	Spokes of A-9			
	Comm Problem Transit			
	in blind for Omni B			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				26
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
3+24	data still bad			
	B & C he sum he			
	cycled see off			
	primary on all Quad			
	B ???			
	P-46			
	✓ 307			
3+29	docked acq with			
	high gain Auto track			
	comm restored			
	Guest ??? what did			
	he do with Quad B			
	A-11 - (1) moved switch			
	to open position			
	went back to			
	gray			

FLIGHT DIR MISSION LOG	DAY	REV	PG 27
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
3+38	T & D went okay Turnaround accel and went to rate and - may have used more prop - went out to 100 ft rise 66 ft. preliminary back at usage total of 100#		
3+43	working Lm press Step 13 waiting for cabin press to go to 5.0. turning 4.4 repress to fill manually repress in off ??? Ecom safe press on with procedure		
C & C	recommnd cycling all 4 sec p. Bm/RCS Secondary fuel press A-11 in work		
3+50	BSE non propulsive went on Booster		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				28
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	haze - particles			
3+52	O ₂ high flow			
	CDR can see North America Alaska, Cuba northern part of South America - then Jupiter			
	C & C estimates 65 to 67 # Total usage in SMKCS.			
3+56	Expect no midcourse #1 based on preliminary data			
3+57	12 latches locked			
3+59	Reading up exami pad.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				29
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
4+02	reading now			
	evacuee pad readback correct			
4+06	htec current good on LM J & W			
4+12	late on LM eject			
4+14	logic arm go for pyro arm			
4+17+30	with LM ejection Cryo ^{pur} late ^{pressure} htec auto O ₂ for manuals			
	logic & pyro safed			
4+28	told A-11 about prop usage #20 over A-11 roger			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				30
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
4+30	Shigshat will need extra mwr to get to P-23			
	New Pitch & see Shigshat 290 mic 24/4			
	R 2.5			
	P 289.3			
	Y 357			
	Shigshat manually at 5+05			
	Guid in P-40 auto mwr.			
4+33	Gimbals & BTay's on			
4+40+10	Evasive mwr			
	Gimbals off			
	Guest pitch #1			
	ems AV -4.4			
	TVC Suro pen off			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				31
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
4+43	angle pitch #1 on got in heard indication BTry's off			
	update for Shingshat mva start damp 12 minutes 13 48 terminate			
	A-11 Roger			
4+50	MCC #2 17 fps will not do 21 fps FIDO			
	Ecom - cys balancing procedure ready - running it by SPAW			
	Can't see the STTB in Shingshat altitude			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				32
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	P 354, X019.5, R 307 - dinghot alt			
	These numbers are FIDO			
	generated - are different from			
	FAO because of window number			
	versus camera location number.			
5+03+20	Lox dump - BSE			
5+05+05	Lox dump terminated - BSE			
	Trunnion bias update ready - Guido			
	will uplink when ready.			
	will			
	Cryo balancing plan			
	O ₂ Tk 1 Heater - off			
	O ₂ Tk 2 Heater - Auto (verify)			
	O ₂ Tk 1 fans - off			
	O ₂ Tk 2 fans - off			
	H ₂ Tk 1 Heater - Auto (verify)			
	H ₂ Tk 2 Heater - off			
5+13+30	Trunnion bias update - guid			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				33
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
5+14	Can see SIVB non propulsive vent			
	RSE cradling antenna low gain			
5+19	ECOW - Verify waste valve in vent Lm /cm SP - 0.2 -			
★	been in vent for 45 minutes			
	O ₂ flow looks funny all day.			
5+23	Wishing Dr. Mueller happy birthday & California.			
5+26	ECOW & FDD want waste H ₂ O dump - dump now, next dump would be ~25 H ₂ O -			
5+28	Asked crew to dump camp waste water to 25% A-11 roger			

FLIGHT DIR MISSION LOG		DAY	REV	PG 34
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
5+34	Completing P-52 - guidance			
	Tearing - negative			
	call a little larger			
	repeat P-52			
5+37	Waste water 13%			
	Terminate A-11 again			
	SLV allage burn			
	Circum - with auto			
	optics different than			
	alignment.			
	FIDO no MCC L again			
5+42	NO MCC, will be			
	needed - FIDO Swears			
A-11	Third Star (no. 30)			
	right in the middle			
5+45	TLI + 11 block data			
	- 2.38 X			
	- .7 Y			
	- .77 Z			

FLIGHT DIR MISSION LOG		DAY	REV	PG 35
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
5+53	SLV function performed			
	SLV safed			
	all okay.			
5+58	A-11 optics cal			
	data altitudes			
6+09	Taking marks for optics cal.			
6+25	#2 O ₂ TANK FAN ON -			
	it is turned on because			
	we need more heat in			
	tank at the present			
	time.			
	The high withdrawal			
	rate tends to confirm			
	that the O ₂ FLOW			
	Xducer is erratic.			
	N89 AR looks large -			
	handmark lat, long, alt			
	AR, AV - RAN the			
	test 3 times, the			
	limit is 50, so repeated			
	the test 3 times			
	PAGE 38 - notes			

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FLIGHT DIR MISSION LOG		DAY	REV	PG
KRAWZ		7/16/69	TLC	3836
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	<u>Open Items - Shift II</u>			
1. Watch 10	2. Pipe bins - .50 shift			
	Noted & confirmed in			
	knowen ϕ - Maybe Accel			
	Sensitive - watch			
3. Normal 2	Radiator ΔT not as expected			
	ΔT was caused by sec			
	Loop circuit during E.O. - Status.			
3. Shorted	TV - No Modulation at GDS			
Patch cord	- Apparently OK at MLA.			
4. Nothing 4	Evaluation of Res Q and B			
new to ply b/c	Anomaly see (1)			
5. Fuel crew did	Some problem with Accel			
not hit 50	Proceed on			
P3-2 of c.c.	cmd during TD & E.			
Normal 10	Cabin press during initial			
CREW MISUNDERSTAND	LM Press was only 5 psi @ 1300			
of Decal	Pre ejection c.l.			
	To do -			
1. Complete	1. Docking Data Ply b/c			
nothing new	2. SPS Evasive data			
2. RORV - OK	evaluation			
	3. Evaluation of all			
	consumables -			
	Res			
	Hz, O ₂			
4. Normal 6-10%	Flow rate xdcers - Fuel cell			
variation	5. MCC Status -			
5. MCC 21 ft	6. Cryo Plan			
4. HTRS - Auto				
4. FANS - OFF				

FLIGHT DIR MISSION LOG		DAY	REV	PG
				3937
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Open Item			
	7. Check Warn ht at ejection			
	8. Check P-57 Gyro compensation + need +			
Watch in Future -	9. Pitch Gimbal motor - watch on future bearings for turn off			
Anything we should know	problems.			
	10. How serious about the Russians - BORUMAN			
***	Don Lind - setup for laser vis'by test at 12+00 during east period - apparently Low is unhappy, should check with him first - McDonald & Dr Alley*			
	Next opportunity is at 15+00 35+00			
Q-	11. All Pulse Torque deleted			
Q-	12. Why cycle L.R. Pos 1-2-1. -			
	* Grave SPAN the Problem			

FLIGHT DIR MISSION LOG		DAY	REV	PG 3738
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Rad out Temp between 25 & 31°, Evaporator will be turned off.			
7+00	Auto Optics ARE NOT GIVING PROPER POINTING TO SUB STELLAR POINT.			
	198.6 130.7 340.0			
7+00	Altitude 31,725 miles V ₁ — 10,765 fps —			
	Crew sez P-23 Pointing Data may be wrong — however at our altitudes the shaft & horizon /s were about what we would expect / there ARE AN INFINITE NUMBER OF altitudes, we think the crew is doing right, however he may not be seeing the nice symmetrical horizon he is used to seeing in the simulator			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				36 39
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>Retro</u>	TLI +11 DATA is onboard now working on the Abort plan for the will provide HARDcopy. FDO - Scrubbed MCC#1, MCC#2 = 21.3 fps - LOT OK - MIT & math physics ± 5 km Tolerance in EMEU (was 24 km) Loaded - on Horizon AH			
7+29				
<u>RTCC</u>	Down to 1 Machine - Standby is Available within <u>2</u> 5 min			
<u>Guido</u>	- <u>P23</u> is working OK, most be difference in Real & Sim world.			
<u>GNC</u>	Down to <u>36</u> on RCS			
7+24	Crew now missed the Star 4 marks, there was a red glow in sext (reflections off the LM) now running 45 { R 197.8 } Retical { P 128.5 } off 30° R { Y 340.0 } Star not in sight			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				40
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Down 21# O ₂ } 2.5# H ₂ }			
	with EOM Wom of			
	112# O ₂ & 8.600 H ₂ ,			
	the however values are			
	due to Lesser Load than plane			
	A 32.6 C 37.6 B Charge			
	Crew may not have been			
	— Playback of Data from			
	GDS was RF Site			
	Recording — they			
	should have played			
	DACIL the Dump			
	Data *			
08+21	PTC Refsumat uplinked			
	to S/C —			
	* Big discussion on possible			
	platform drift & its			
	effects on P-23 NAV			
	sightings — for a			
	while we talked about			
	performing a P-2240			
	PAD Refsumat &			
	computing a drift			
	check — GNC sez			
	that he does not			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				41
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	have enof time to			
	get good hax on			
	Drift terms — so			
	we didnt row drift			
	check —			
8+26	Advised crew to perform			
	P-52 Opt #1 Preferred			
	to PTC Refsumat &			
	START PTC —			
	# Alarm 401 # crew			
	jumped out of P-52			
	since they got alarm			
	that said they would			
	move into Simba			
	lock —, now maneuvering			
	into 0,0,0 they will			
	row P-52 as a wave			
**	This Team is not too			
	Red hot *			
8+13	uplinking cam 2V —			
	Crew will refer to LM			
	Slot 2 via V-66 —			
	also had to uplink			
	new Refsumat since			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				42
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	the S.V. update wiped out the STABORT where the Ref was in Temp storage prior to the P-52.			
8+47	TV Problem - we think there was a shorted patch cord at GDS upstream of RCDR+ The MLA B TV DATA was good - Texas also saw FM -			
8+53	- in Attitude, cannot get HBR - uplink to CMC LBR -			
*	LM HTR 2.43 AVERAGE Low .8 H+ 6.8 15% duty cycle IMU 24% " " L:R with variations up to <u>50%</u>			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				43
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	• CRYO PLAN ALL 4 HTRS			
	Agto, All FANS off			
	AFTER STARTING			
	• A & D Quads for PTC,			
9+20	TURN off B & C			
*	• Not too change in			
	Attitude profiles -			
	we maneuvered into			
	an attitude where			
	we have NO own			
	coverage - Looking			
	up the SPS.			
	Voice is usable -			
	Crew pitched down			
9+32	- Crew ran P-52,			
	Repeated data - star			
	Z diff was .76 -			
	Exited PROGRAM			
	- finally got a			
	good star Z diff .01			
	was having a			
	problem due to			
	Reflections from			
	LM & "Damp" Cloud			
	Maybe things			
	are settling better			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				44
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
*	I think we shod make			
	book on AT of Neil's			
9+45	conversations —			
*	P-52 complete —			
	lets make sure that			
	we get a good drift			
	check on the IMU			
9+50	Advised crew to start			
	into PTC —			
	AT Set-Sw in <u>GDC</u> Pos			
	we think it is in GDC			
	IMU — it shod have			
	been in GDC —			
Q	what is Proper Pos'n			
	for the AT Set Sw			
	for P-53			
	CDO # IMU < 15			
	Cryo ECS usage is between			
	.4 & .6 #/hour — we			
	still dont know if we			
	are flowing O ₂ —			
	there is a rubber			
	bladder in waste			
	wght system that			

FLIGHT DIR MISSION LOG	DAY	REV	PG 46
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	Vent During PTC -		
	Transmit Above procedure		
	to crew tomorrow when they		
	wake up -		
	• This will determine		
	if we have had flow		
	sensor, if we were		
	enriching cabin. if		
	• If we do it while		
	in PTC after sleep, we		
	can find out for future		
	missions if force clobbers		
	the PTC - maybe this		
	is why 1st nite of A-10		
	PTC did not work.		
10+14	See the A-10 & A-11		
	Evasive maneuver, they		
	look identical to me,		
	Pc, FC & Ox Interface look noisy		
10+20	Rates are low enough		
10+23	Armstrong - called &		
	wanted to know if we		
	wanted some more -		
	TV prior to the		
	PTC -		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				78
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
Cryo	{ Auto on all 4 heaters			
PLAD				
10+49	Termiuate TV At their Convenience			
	• Rates Super for starting PTC			
	• LM/CM ΔP 0.5			
10+56	• Note Gorman noted that RR & ECG from center cock had a lot of ripple during TV Dowolnik			
10+57	Crew has started the PTC Roll Rate Block Data — thru			
	Return to earth stop v2 in front of book			
	Configuring the s/c for minor switching Beam wide —			
11+13	Termiuate BATT <u>B</u> Chg			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				79
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Note - we did not On			
	Dodge the Fuel Cells			
	to write since we started			
	PTC early - SPAW			
	Concoers -			
11+17	Remind crew of using			
	Down voice B.O. if			
	they want to call			
	us to write -			
	RAD COR-11002			
	CWP-10002			
	LWP-09002			
	no med - Fit as a			
	fiddle -			
	Have they tried			
	GAS H2O Sep -			
	it works OK			
	Leak @ Junction			
	between Food VAG			
	AND			
11+26	Crew starting to			
	Eat - all comm			
	closed down.			

FLIGHT DIR MISSION LOG		DAY 7/16/69	REV 6+30 → 14+30	PG 50
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	— Shift Summary —			
	1. Cryo Plan - HTRs Auto (4)			
	FANS - OFF (4)			
	2. Had much trouble w			
	P-23, we did not see any			
	crew procedural problem			
	& TROMION L ^s Looked good -			
	we are trying to reconstruct			
	with Mattingsly & M.T. in			
	the simulators			
	3. MCC#2 ≈ 21.3 fps			
	4. For next P-22 look &			
	see what drift rate			
	was & see if we need			
	update any drift terms.			
	5. Got Good T/V from S/C			
	at 10+30			
	6. LM Heterscycling looks			
	Good —			
	7. See Procedure p 45 for			
	Cabin O ₂ Enrichment			
	- Cryo O ₂ usage & O ₂ flow			
	rate say we are ≈ 4-6			
	#/hr — this is not what			
	we expected.			
	8. We did not O ₂ purge the			
	Fuel Cells — get it			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				503
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	I am not sure we did not			
	want to disturb PTC			
	8. Network is configured			
	for Down voice B/C if			
	crew should call to write			
	10. See Checklist Chg this Pg			
12+31	N65 is called up X			
	AGC People don't			
	like to leave it called			
	up for an extended			
	time (displaying CMC time)			
	for it will wear out dsky relays.			
*	V34E — to kill DSKY			
*	N65			
*	2 Normal voice is			
	not off +			
	* We think maybe			
	crew terminated			
	the PTC with a V46			
	vice V34 — we			
	will continue to			
	monitor			
<u>Note</u>	V-46 Collapsed db			
	from 30° to .5°			
**	we Advised crew			
	not to turn on AWD			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				51
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
CROSS-101 CROSS-102 CROSS-103 CROSS-104 CROSS-105 CROSS-106 CROSS-107 CROSS-108 CROSS-109 CROSS-110	RCS Select during nite period — we will have to use A different procedure if we when we termin- ate PTC Tomorrow The Procedure will be to Reverse the first two steps on P 9-8 of checklist • 1- MAN AT (2) - Accel and • 2- Auto RCS Sel (12) - MAN A/B Rest of steps are the same This should be A permanent checklist change			
	* { 2-1012 POCA 1825 NM At 79+12+30, LAT POCA 7°N, 61°11E			
	12+59 O ₂ Flow rate sensor looks bad — we need think the cabin enrichment was OK — but we will probably			

FLIGHT DIR MISSION LOG		DAY	REV	PG 52
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
13+00	Crew still not <u>sleeping</u>			
	MCC2 26+40 21.2 ⁰ fps			
	ΔT 2.96"			
	LOI 75+50+17 ΔV 2916			
	w/MCC2 bot fly by			
	Land 174 w @ 145+00			
	No MCC2 POCA @ 174 NM			
	$\gamma_{er} - 47^\circ \rightarrow$ @ 75+39			
	Pc+2 @ 78+00 with MCC2			
	ΔV 3400 fps			
	w/o MCC2			
	ΔV 3675 fps			
	Both Cases Land MPL 500			
	At 120 HRS.			
13+21	{ Alt 62033			
	{ Velocity 7411			
13+20	CMP Asleep —			
14+00	All Asleep			

FLIGHT DIR MISSION LOG		DAY	REV	PG 53
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	P-23:			
	Flew Run 2 in simulator			
	- Collins knows how reticle			
	shd be -			
	1. Reticle perpendicular			
	2. Our Attitudes were			
	correct -			
	3. Shaft $\angle$ is sensitive			
	to P & Y Attitude			
	changes - crew			
	would go free			
	& by time of			
	MARK would not			
	have reticle $\downarrow$			
	4. Control TASK difficult			
	looks like crew			
	shd use auto man			
	capability of P-23,			
	do not pause,			
	establish attitude			
	so horizon is normal			
	to reticle - take			
	marks, if notice			
	that we drift out,			
	use auto man over			
	for next set of marks			
	5. Will use simulator & dr			
	run all of tomorrow			
	PLAN			

FLIGHT DIR MISSION LOG		DAY	REV	PG <u>55</u>
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	TEAM BRIEFING			
	F100 -			
(INFO)	MCC-2 GET 26+40			
	DV 21.1 fms 2.99sec SPS -			
	RGTRO -			
(INFO)	WITHIN 45 fms for Hyby GET 145 GET			
	UPTO 25 GET 15 GET, MPL 49 DUCKED			
	25 GET 25.99 UNPULLED			
	BLOCK TLI+25, +35 +44 +53			
	ONBOARD - \$IT'S GOOD -			
	GUID -			
	P23 - SUBSET - PENNEXS			
★	FUEL - (GNC WILL ESTIMATE)			
	P52 RETURNING P52 -			
★	WATCH TORQUE ANGLES -			
(FOR UPDATE)	UPDATE \$PIPP TOMORROW (GNC)			
(MAYBE)	CONSIDER GYRO COMP DRAINING			
	UPON P52			
(FOR CREW)	RAN SOME CMS WORK - ^{BUDG5} NONALIGNED			
	ARTICLE -			
	KEN MATTHEWS TO RUN SOME GEOMETRY			
	\$ THEN COME OVER TO BRIEF MIKE			
	BEFORE P23 TOMORROW - (550)			
	SEE CONNORS NOTES PG 06 (550)			

FLIGHT DIR MISSION LOG		DAY	REV	PG 56
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	GNE -			
	EECOM1 -			
	① - FUNNY O ₂ FLOW XDUCKER			
	SHOULD BE 1 st /HR -			
	HIGHEST IS .5 th /HR -			
	★ GET ADLOT U/O ₂			
	CONCERN FOR CABIN PURGE TO VERIFY			
	THAT WSTMGMT VALVE IS FLOWING			
	PROPER O ₂ -			
	BYPASS WSTMGMT -			
	FILTER ASSEMBLY QD FOR URINE			
	ASSEMBLY SHOULD CAUSE			
	O ₂ FLOW TO <u>REG (2)</u>			
	CHECK STOWAGE + FLOW			
(FOR CREW)	★ PROC DUE BY MORNING -			
(INFO)	② WATER SEPARATOR APPARENTLY			
	WORKING WELL / MEMORANDUM			
	PRESS FIT OVER WATER GUN,			
	LEAKING LITTLE BIT			
(FLYPLAN UPDATE)	③ DUMP AT 26 GET -			
(INFO)	④ PRI EVAP WORKED WELL AS FAR AS			
	CAN FILL			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				57
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
INFO	5 CREW MANUALLY BRAKICE - FANS OFF HEADERS OFF O ₂ -10 th ON NOM FLT PLAN H ₂ -2.7 th			
	6 AT EJECTION, O ₂ STRAT -PRESS DOWN JUST LIKE 10.			
	7 LOAD SHARING FC 3 - 3% MORE THAN 1 & 2 ALL PARAMETERS STABLE -			
	8 BOTS CHG COMPLETE - 40AH. BAT A TOMORROW -			
INFO	9 OMNI SWITCHING - 100% HBR			
FLT PLAN	10 O ₂ PURGE F/C TOMORROW - 124/0565			
	GNC-			
FOR CREW	1 DEAD BAND CHECKLIST - BEING PREPARED BY FAD (Pg 93) FOR READUP TOMORROW -			
INFO ON KCS USAGE	2 6-11 5 th P23 INCL, P52 TWICE PTR. NOW 45 th DUE TO T T			
CONSIDER	GNC THINKS FUEL GOOD ^{ADEQUATE} FOR P23 WATCH FUEL CONSUMPTION DURING P23 TO THINK ABOUT SKIPPING IT. IF IT PROBS ON LIKE FIRST ONE, CONSIDER			

FLIGHT DIR MISSION LOG		DAY	REV	PG 56
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
INFO MAY UPDATE	(3) 2.30 MERU - ANOTHER PBL AT 240GT. IF AGREES, <u>WILL UPDATE</u> -			
UPDATE	(4) PLAN TO UPDATE Y PIPA -			
INFO	(5) QUAD B ISOL (PRI SEC) CLOSED AT SEP - HELIVHISOL ALL RECYCLED ASCC ACLOSED . LIKE APOLLO 9.			
INFO	(10) DURING TURN AROUND, ^{FOOTAGE} CROW OMITTED APPROCEED. CMC THEN STOPPED RATG AT STICK CMP.			
WATCH INFO	ALL CONSIDERED/CLOSED - PROCEDURAL (11) PITCH ^{#1} 2 GIMBAL NOT TURN OFF FIRST TIME (12) SPS BURN LIKE 10. - GO -			
	CAPUTM			
INFO	<u>SURGEON</u> - ALL ASLEEP - 1 PRE FLIGHT OPENING LOR DECONGESTANT NO IN FLIGHT MEDICATION SO FAR -			
INFO	<u>FAO</u> - TV AT 340GT -			

FLIGHT DIR MISSION LOG		DAY	REV	PG 59
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
TALKW BACKUP	CONTROL - (1) PITCHOVER RATE PERASCENT -			
WE'LL HEAR	(2) LOG RADAR SELFTEST 1-2-1			
	TO BE RESOLVED BY BILLENAR JULY 17			
SAG ACTION	(3) ERASABLE QTY FOR LOG RADAR			
	ANT. POSITION.			
	NO COMMENTS FROM SPAN -			
	ALL COVERED -			
	TV SCHEDULE IN FRONT OF BOOK -			
16/28				
EEOMM	FLOW RATE SHOULD BE SAME FOR URINE			
	PICTER ASSEMBLY AS FOR WEIGHT NOT WLG -			
	URINE PUMP NOzzle size CONSTRAINS			
	FLOW.			
	THESE PICTURES INDICATE SOMETHING			
	IS FUNNY. HOWEVER, I'VE AGREED TO			
	PURSUE THIS TEST SOME. SUPPOSE THE FLOW			
	DOES THE SAME THING. I CAN IMAGINE THAT			

FLIGHT DIR MISSION LOG		DAY	REV	PG 60
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	THE NEXT QUESTION WILL BE WHETHER THE URINE			
	DUMP NOZZLE IS BLOCKED. ESPECIALLY IF YOU DON'T			
	WANT TO BELIEVE THAT THE X-DUCKER IS ACTING			
	UP. (APPARENTLY JOHN APRON ADD TO DO SOME			
	TALKING TO CONVINCE PEOPLE THAT THAT WAS THE			
	MOST LIKELY POSSIBILITY -)			
<u>16/526</u>	<u>NETWORK</u> - TURNED OVER LINE 527			
	TO TELCO - (GSIC TO MCC) GETTING DRUNK -			
	LINE 526 ALSO DRIPPING OUT OCCASIONALLY -			
	(WE ARE ON AN ALTERNATE ROUTE ON BOTH			
	LINES. SOME PROBLEM IN JASPER, ALABAMA			
	ON PRI ROUTE).			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				61
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
17/03	E/ TCE ON FC#2 CYCLING EVERY 5 MIN			
★	PERIOD (LO AMP)			
	GONE TO LOOK AT STRIP CHART			
	TCE	17:05	157.7	
			~ 156.9	
	FC#1	156.4	17:10	157.3
			17:12	157.7
	FC#3	157.9	17:12:50	156.5
			17:13	156.1
			17:14	156.5
			17:15	156.9
	<u>NET</u> 526 & 527 ARE BACK ON PRI ROUTE.			
	526 SET OUT TO TELCO, RUNNING TBSSIS.			
17/25	NET7 BOTH LINES BACK - BOTH DUE TO			
	TELCO EQUIPMENT PROBLEM.			
	MSB UNIT RADIO BETWEEN JASPER			
	AND HOUSTON			
17/35	<u>GNC</u> SECOND CYCLE AROUND THE PTC CIRCLE			
	WAS INSIDE THE FIRST ∴ PTC STABLE			
	& EVEN GETTING BETTER -			
17/39	E/ FC#3 3 Amp higher load sharing			

FLIGHT DIR MISSION LOG		DAY	REV	PG 62
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	is nominal due to higher Fe#3 skin Temp			
	which in turn is due to the calibration of			
	the H ₂ bypass valve - See span report -			
	FCABIN GOING DOWN			
	⑦ With H ₂ O ₂ FOR CREW, CO ₂ WOULD HAVE SET OFF HCNH			
	ON THE SIDE OF NORMAL O ₂ FLOW			
	① CABIN P HISTORY VERSUS, 789#10 FROM ^{SEAL OFF} ANALYST ^{TO} CABIN ^{W/AL} CLOSING ^{REG} LEVEL			
	② ACCUM CYCLE - NO HUMIDITY -			
	③ NORMAL METASOIL LEAKAGE RQMTS - CURRENTLY			
	④ URINE PUMP WORKED (3 TIMES)			
	→ READING .196#/HR WHICH IS ZERO ON CALIB SCALE			
	⑤ FAILURE TO REG WHEN CABIN AT 4.2 during LM PRESS			
	⑥ CRYO QTY MINUS F/C SHOWS .970.5#/HR FOR REGS			
	VICE .196#/HR.			
19/38	ON THIS P23 business, all parties are			
★	talking about this symmetrical horizon			
	business. However, it appears that Mike			
	asked that if we told him it didn't matter			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				670
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	See A16 Transcript attached -			
	It looks to me like Mike understood			
	all that coded horizon business & was			
	trying to tell us. Will Farmer just told			
	me that Russ Larsen says you have to			
	be Target & bring in the turnion to			
	get star on horizon at the sub-stellar			
	point.			
	20/05 <u>GNC</u> 3.5% Avg below flight plan			
	SM RCS			
	20/09 E/ FC#2 TCE 160° to the maximum			
	Strip Chart started at +6 hrs 06T -			
	TCE has been doing it since that			
	Time -			
	EECOM working on getting data to see			
	when it happened to that started			
	to happen.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				64
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	So it's been going on as long as we have			
	had. I on strip charts & probably longer.			
	(First reported time at GET 17:03)			
<u>20/19</u>	Caplan suggests that we calibrate the			
	Xducer with the Direct O ₂ valve in order			
	to see what where we stand on having			
	MC+W protection. EECOM concurs, and			
	is pursuing.			
<u>20/21</u>	A lot of evidence exists that O ₂ flow			
	is Xducer problem. (page 62). We really			
	have some explaining to do if it is not Xducer			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				65
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>20/43</u>	Data @ 3+45 as far back as 3+45. @ 4+12 started to pull in @ 5+40 30min period of no activity 6+10 started to pull in & still at it - SPAN looking at data before 3+45 - Sounds like it has been here quite while today.			
<u>21/17</u>	E/ Direct O₂ Valve - 45° 9#/HR 20min to get to relief - slowly increase to 45° & watch on flow - Will wait to see how discussion of 6+16 comes out on how to get the remaining 2 hours of enrichment.			

FLIGHT DIR MISSION LOG		DAY	REV	PG 66
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	<u>SHIFT SUMMARY</u>			
	1) O ₂ FLOW ANOMALIES			
	A) MUCH EVIDENCE (CONCLUSIVE TO ME)			
	THAT IT IS LOUCER			
	B) STILL NEED 2 MORE HOURS OF O ₂			
	ENRICHMENT			
	WST MGMT VALVE VS. URINE FILTER			
	(DOES NOT MATTER SINCE OUR			
	CONCLUSION IS WSM VALVE HAS			
	BEEN FLOWING) <u>6MLOW THIS A.M.</u>			
	C) EECOM WRITING UP DIRECT O ₂			
	CHECK WHICH IS DESIGNED TO			
	CHECK M OW W PROTECTION OF			
	O ₂ FLOW HI WARNING GLITE. (MAY			
	GET A TEST WHEN ENRICHMENT			
	BLEED IS EXERCISED)			
	2) P23			
	I BELIEVE MIKE UNDERSTOOD			
	WHY IT WASN'T WORKING. OUR			
	CURRENT EXPLANATION IS WHAT			
	HE WAS SAYING (SEE A/G TRANSCRIPT			
	PAGES) IN LOG OR READ IN ENTIRETY)			

FLIGHT DIR MISSION LOG		DAY	REV	PG 67
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	KEN MATTINGLY IS IN CMS CHECKING			
	SAME GEOMETRY. WILL BE OVER TO DISCUSS			
	WITH MIKE. WE SHOULD CONCUR WITH			
	MIKE'S STATEMENT OF YESTERDAY ABOUT			
	BEING TANGENT AT SUB-STAR			
	POINT -			
	(PROBABLY O.K. IF WE LEFT HIM ALONE)			
	(DON'T USE TOO MUCH SIMCS FOR P23)			
	3) TCE ON FC#2 HAS BEEN SLOWLY			
	OSCILLATING 1.50 OVER SEVERAL			
	MINUTE PERIOD.			
	HAS BEEN OCCURRING FOR SOME TIME.			
	NO ACTION BUT WATCH -			
	4) SIMCS IS ⁵⁰ 30 # BELOW FLIGHT PLAN			
	<u>CONSERVE.</u>			
	5) MCC-2 ~ 21.1 fps - NO PROBLEM			
	6) PTC HAS BEEN GOOD			
	7) WATCH PSL FOR MERU UPDATE.			
	8) PITCH#1 GIMBAL SWITCH NEEDED TO			
	BE RECYCLED AFTER LAST BURN -			

[illegible]

FLIGHT DIR MISSION LOG		DAY	REV	PG 70
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
22+40	Green Team on #2			
	Crew stirring but not awake yet			
	open from last shift.			
	(1) O ₂ flow transducer			
	(2) P-23 - Ken Mattingly.			
	running procedure in training			
★	watch for prop usage during P-23			
	3) We owe 2 hrs of O ₂ enrichment			
22+45	MC & W get low			
	press button warning tank #1 - pressure coming back up now. Ecom thinks they cycled the fans			
22+50	Called A-11			
	A-11 good morning.			
	updated post sleep checklist concerning auto RCS select switches & rest of flight plan updated (previous page)			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				71
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
23+00	CDR 7.0 EMP 7.0 LMP 5.5 unboasel qty of SM RCS 86.7% A 87 7% B 88 7% C 90 7% D } Sleep } Status			
	Guid waking up recommendation for P-23 work today			
23+06	A-11 Starting Charging Bat A voltage started high coming down now. Bat B did not start this high yesterday Econ says no problem difference in Btry's probably.			
23+14	Reading up news on A			
23+23	Interrupt Btry 1 Charge for Moc			
ECON	Or enrichment - do next PTC ???			

FLIGHT DIR MISSION LOG	DAY	REV	PG 72
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
23+27	asked guid & FAO for priority on P-23 & prop usage. - got procedure -		
23+59	gone A-11 comments on P-23 Stopping P-52		
24+11	A-11 only seg on f.c. pages - MCC negative		
	A-11 looking at N-93 value?? proceed		
	we would like to uplink State vector		
	A-11 f.c. 3 showing more in page & putting out more current than other 2		
	load in & verified		
A-11	Star 37 optical cal ?? use one computed angles for mvr.		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				73
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
24+27	Need LM/CM AP readout - ???? has he changed computer			
	FAO has rechecked altitudes - zero optics			
	A-marking on star fine balls going to Poo V49 move to Substellar point.			
	wait on LM/CM SP have not changed computer			
	A-11 moving to alt			
	R 8.37			
	P 61.33			
	V 331.7			
	Code 110			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				74
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
24+32	Consistent measurements on platform based on P-52			
	X = 2.24			
	Y = .87 } merw.			
	Z = .11 }			
	talk to G & C about this			
	later			
	A-11 auto man works fine at sub stellar point but no star in sight. Star may be lost in glow cannot find			
	Shaft 331.2			
	Turbine 35.85			
	Jed confirms these values			
24+53	MCC #2 pad available except for stars.			
25+07	.95 Lm/cm ΔP A-11			
25+11	Lonell called Neil			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				75
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	A-11			
25+14	M line 90 deg out of phase			
	{ Shaft 112.2 Turbine 35.9 }			
	Sitting & holding			
	A-11 appears okay now			
	{ Auto optics procedure is first part of P-123. Auto mms. may be problem.			
25+22	preparing gyro drift & acceleration updates C & C recommends doing after MCC #2.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				76
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
25+26	Ecom pre MCC 2			
	(1) water dump			
	(2) Bat change off at			
	26 hr. #1 Start			
	after burn.			
25+39	Hoaray - P-23			
	Seems to be working.			
A	get paragraph summary			
	of problem.			
	get into			
	Guid - 1 opt. cal - he			
	did not bypass			
	Should do better a			
	proceed			
D	Completed 3rd set			
25+48	recommended that			
	terminate P-23			
	at this time.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				77
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
MCC				
# 2	25+52 pad readup - readback correct.			
pup				
	Status return - OK on pad			
	FIDO - 3 secs free return			
	Brief - TGT & new			
	load = about			
	5 minutes			
	GFC - SPS OK			
	All set			
	ECorn - water dump in			
	progress			
	Capcom - okay			
26+00	POO & accept			
	A-11 need one minute			
	to check P-23			
	effects.			
26+01	BAT A Charge Terminated			
	ECorn.			
	I have asked FAO for			
	a agreed upon summary for			
	the P-23 problems.			
26+03	looks in & verified			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				78-
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	recycling CP's.			
26+08	5 star check in line of sight of S-band Antenna			
Ground Scouting	A-11 now on Omni A			
	waste dump was okay.			
26+20	P-23 P-23 work cost 15 to 17 # B & C - cost 2 twice as much as expected			
26+24	Ellen would like for gain P-35 } for high gain. 4 0 }			
	PCS Δ from flight plan.			
	A - 19			
	B - 10			
	C - 23			
	D - 14			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				79
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
26+38	A-11 high gain antenna angles			
26+40	good for burn from MCC. Bats in line Gimbals on - 87 amps to 90 amps			
	BTry A & B not very close to equal. in lead sharing. prior to burn.			
	gimbals off & Btry's off			
	A-11 87 & 88 psi. pc during burn. We saw 95 to 97 Even satisfied gimbals are off			
	ΔVc - 3.8 fps			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				80
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
26+51	Guid - V66 reminder Computer Changes Query - changed A-11 Computer 1.7 %			
	Prep bal standpoint use Quad A & B to start - GEC A-11 roger			
27+00	he has done V66 guidance			
27+01	Bat A Charge started			
27+04	ECM - Turn stars off in Oz Tank #1 Oys balance A-11 roger			
27+13	A-11 Comm configuration for PTC Sent up			

FLIGHT DIR MISSION LOG		DAY	REV	PG 81
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
27+17	Buzz thru Binoculars View out of this world Binocular has tendency to move around. Weather comments			
27+21	point where sun reflects back to us - ocean color uniform except for region $\frac{1}{8}$ earth radius in diameter - the blue is grayest color.			
27+25	A-11 Satisfied with P-23 now pick Stars differently - not Satisfied with procedures			
27+27	Buzz been having ball floating around Mike been busy - looking forward to afternoon off Neil - little warmer - Cooled off during PTC			

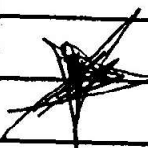
FLIGHT DIR MISSION LOG		DAY	REV	PG
				52
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Sent temp in leaf high			
	40's Cabin in high			
	60's - no moisture			
	in S/C			
	Hydrogen separator -			
	leaving leak but			
	doing good job			
	Mike has had 3			
	cups of coffee			
	Ready to go ahead with			
	PTC			
27+36	A-11 PTC started			
	and looks good			
27+45	Ecom Oz Test to see			
	if flow sensor is problem			
	Also need 2 hrs			
	of cabin enrichment			
27+49	Giving A-11 procedure			
27+53	Configuration complete			
	A-11			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				83
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
28+07	Mike sees would cant describe			
28+25	Cnd reset up Tm			
28+27	lost MMD Cnd computer			
28+34	B&C - SPS data indicates good engine 94 psi & solid ★ Compared very well with yesterday's burn			
28+36	A-11 LM/cm DP 0.98			
	O2 flow onboard .35 before enfig offscale low Accurate cycle sends to .75 - .8			
28+38	told him SPS results were good			

FLIGHT DIR MISSION LOG		DAY	REV	PG 84
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Complaints to Chief			
	Salmon outstanding			
	.95 flow on board			
	Or doing decomater			
	cycle			
	* Crew reported			
	87 to 88 psc during			
	MCC2 burn - we			
	should think about			
	this in terms of			
	LOT monitoring.			
29+41	ECOM & TELCOM &			
	SPAN want additional			
	power on Or switch-maker			
	terminate at 230+53			
29+43	Guid ready for			
	uplink for platform			
	& beacons = Standby			
	May need SH uplink,			
	can do all at once.			

FLIGHT DIR MISSION LOG		DAY	REV	PG 85A-
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Shift Summary:			
	Old problems			
	1) Had problems ago with P-23 - we had some problems today but were able to get 3 good sets. Cost us 15# prop which is too damn much. I have asked FAO to summarize problem and get Guido, M.T., and everybody else to agree.			
	2) P-52 Shift drift rate check - Platform appears to show consistent numbers B & C looking at at accelerometer & gyro drift update requirement			
	3) We did the O ₂ fuel cell purge following wakeup			
	4) O ₂ flow rate sensor -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				82B-
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	My Shift Summary:			
	1) we updated post sleep Checklist on auto RCS select switches			
	2) We are down probably 60# on RCS - better w/dts although there is no more P-23 work.			
	3) P-23 much more discussion but finally got good results. A-11 satisfied with results but not procedure.			
	4) CO ₂ reading 1.7 after this morning temperature change			
	5) Platform & accel update requirements needed from B/C planned at 30 hrs			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	6) We screwed up the miss slow sigtly some way prior to MCC 2. did not account for regain antenna. Check with guidance on this. we recovered okay			
	7) Prior to MCC 2 with Bats online. BAT A was hogging load. we had been changing prior to this & even thought that is reason - might pay to look at history on BAT A.			
	8) Neil reported 87 & 88 psi during MCC 2. we saw 94 solid - consider this for LOT.			
	9) Ecom has lites off in 8. Take 1 for Cyno balance.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
KRAOZ(2)		7/17/69		86
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	White Team			
31+00	Crew - verify that the cabin enrichment was been terminated ~			
	GDS/madred have			
	② <u>PIPA</u> ③ <u>IRIG</u> updates			
	GDS obtaining TV Data from S/C -			
	some horizontal streaking -			
31+12	GSFC CP Faulted -			
	recycled - people still			
	spooky - will follow			
	up - GSFC CP - GON			
	Cmdr w Lar Owns "D"			
	Crew selected Bobb -			
	we are at limit of			
	own coverage for			
	TV -			

FLIGHT DIR MISSION LOG		DAY	REV	PG 88
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Crew view thru the Sxt is Great —			
	O ₂ Purge is Terminated the LM/CU AP is 0.98 At 28+00,			
	EECOM Consistent imbalance in TANK #2, may have slightly degraded Element About 1# differential, using as predicted. Fuel Cell Load Sharing			
	30% #1			
	33% #2 } *			
	36% #3 }			
	Very Poor Reactants, purge did not help 1 Volts —			
	Cryo Plow - 4 hrs Auto Fans off —			
	O ₂ Flow Hi (C & W) now is biased so it would come on at 5#/hr			
	CO ₂ Sensor is reading 2 mm/Hg - may be sensor problem.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				90
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Oobd P. meter is 0-150			
	psi / crew was reading			
	87 psi we read 94 on T/M.			
Telcom	—			
LM	Cabin leak rate .065 #/hr			
	Heater currents are			
	nominal —			
	Peters sez that CM			
	Purge was satisfied			
	LM O ₂ concentration for			
	EVA — SPAN covers			
Control	+ concentration is that			
	we shud press on			
	with L.R. Test. — I			
	understand that Mr.			
	Low does not concern w			
	L.R. Test —			
Capcom	+ Sergio Happy —			
	GAF C/P got into			
	problems due to L.S.			
	was cue up — when			
	recycling they had			
	equivalent of buffer			
	pool overflow —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				91
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
Goibo	- have changes to Inflight Eload			
	Also have AH update from P-23.			
	L.R. Body / S for			
	update update to Eload			
	Are still in work			
	* Inrig / PIPA / Tephew			
	E update data to Capcom -			
	* AH For mid course			
	NAV will be available			
	to us @ 3400			
FBO	- WORKING TRACK DATA,			
	evaluating MCC data			
	- MCC 1.2, MCC 5.3			
	based on oobd Vg			
	If we use downlink			
	T/M Vector we get			
	12.4 fps for MCC -			
Retro	- Blic data oob'd OK			
	LOI-2 Flyby to			
	Prime CLA is only			
	PAD data -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				(95)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Estimate we will move into PTC About 34+00, it will take about 1-2# to exit & reenter PTC for TV PASS - we are following nominal usage -			
	TV Attitude			
	34+00 R 261 HGA P +28			
	P 090 Y 271			
	Y 000			
	LH window pointing at the earth.			
32+25	Providing crew updates to Alt & Emer C.L.			
	Discussion with crew			
	① Accel Cmd -			
	② Thrusters - ON ^{AutoRec} _{Select}			
S/C Ctrl Sw	③ Acc ⑤ Rate Cmd - <u>R, P, Y</u>			
③ Acc				
④ Cmd				
	At roll of 261 -			
	when db collapsed; established a new Att reference; prior to selecting Rate Cmd - must cycle S/C Ctrl Sw from Acc to Cmd			

FLIGHT DIR MISSION LOG	DAY	REV	PG
			97
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	offset — we will		
	update, but we asked		
	SPAN to Romanop		
	it & obtain GALE		
	Corporate Position.		
	we will update E		
	New Location @ 99+00		
	Along with PIPA BIAS.		
33+42	Start of Flip at		
	F.O. Posix on		
	ECs Redundant		
	Comp Ck — this		
	+ will end in an AMD		
33+59	Network configured		
	for TV —		
	TV right on		
34+11	End Earth View —		
	start interior —		
34+31	— Apollo 11 TV End		
<u>34+35</u>	Error Rst to clear		
	downlink registers		
34+37	O2 FC Pierce }		
	L104 Chance }		
	}		

FLIGHT DIR MISSION LOG	DAY	REV	PG 98
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
34+52	Steady blue light 1/2 hour - west Texas - will try it for next 1 hour		
	CO ₂ PP came down from 3.1 to 2.4		
	We blew the initial attempt at PTC, picked up 0.7°R, 0.3Y, 0.2P V ₀₆ N20 ICDU < 2 - Load then in V ₀₆ N22 & Gotherd normal PTC initiation. When we started PTC we did not		
35+27	P-70, Y 90 HGA - Advised crew that we would pulse laser about 1 cps from McDonald - it is near the terminator now -		

[illegible]

FLIGHT DIR MISSION LOG		DAY	REV	PG
				99
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	296.8 Clearance for			
	Recovery tomorrow			
	for use in recovery			
	exercise -			
35+34	141.5 shaft			
	39.5 Tension			
	Did not see Laser			
35+50	Crew went thru step			
	7 of the PTC Procedure			
	then got an operator			
	error			
36+10	Finally got into PTC			
	Heaters Auto - 4 fans off			
	O ₂ Heaters Auto -			
	Optics Zero for sleep			
37+00	Play back data			
	from first PTC			
	Attempt -			
	Tracking			
	MCC 3 0.9 fps }			
	MCC 4 2.5 fps }			
	CAN do LOI w/o a MCC			

FLIGHT DIR MISSION LOG	DAY	REV	PG
KRANE	7/17/09	3100 → 3830	101
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	- Shift Summary -		
	1. PIDA & IRIG Bias updates		
	were xmitted to S/C		
	2. Updated Crews orb list		
	of Erasable loc with		
	above values		
	3. Cryo Plan - Htrs - Auto (4)		
	Fans - OFF (4)		
	4. CO ₂ Sensor reading about		
	2 mm/Hg High.		
	5. Info: Stopping PTC,		
	TV Pass & 3 attempts to		
	start PTC cost 9# RCS		
	6. FLAP Items -		
	(a) Bolleander & Morris say		
	do L.R. Test as written		
	- Low sez don't cycle		
	will get input tomorrow		
	(b) Low & ECS People		
	want to do redundancy		
	Component Check (ECS)		
	Prior to LOI - this		
	will also be discussed		
	tomorrow.		
	7. Have GAEC Data on L.R		
	to MIT NAV coordinate data		
	for LGC E Memory		

FLIGHT DIR MISSION LOG		DAY	REV	PG
		(101A)		
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
OK —	1. Consumable/Balance			
See below	2. P-52 Drift Test / $X \approx 10$ $Y \approx .50$ $Z \approx .050$			
Complete	3. PIPA Update $V=20$ $Z > 15$			
1/W	4. L.R. Self test —			
1/W *	5. Erasable Qty for LR Pool GAEC Action			
OK —	6. Cabin Purge — O ₂ level in CW & LH —			
	7. Earth Horizon Bias update			
Flow About 5#/HR —	8. MCCW Check of O ₂ Flow			
- OK -	9. Cryo Plan —			
Load sharing AC) or *	10. Battery load sharing } for MCC #2 — *			
1/W - SPAN	11.) ASDO is going to recommenced EC2 Redundancy component ck prior to LOI —			
still reading $\approx 2 \text{ mm/Hr}$	12.) CO ₂ Reading 1.7 after canister change —			
Comment 87 PSI — 94 ONBD —	13.) Low Onbd P. Meter reading at MCC2 —			
OK —	14.) Go over the T/V Altitude with <u>ECOM</u>			
should be				

FLIGHT DIR MISSION LOG		DAY	REV	PG
				102
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	GOLD FD w/ BLACK TEAM ON #3			
	Sleep period will end at			
	47400 GET.			
38+37	We've lost all D-TV - have it			
	lost for 15 to 20 minutes			
	Network think problem is in			
	RTCC to display interface - no estimate			
	Petro - flyby good on board			
	Fido - MCC 3 < .8 fps			
	MCC 4 < 2 fps			
	about 4.5 minutes early on			
	arrival			
	Guido - no problems			
	GNC - no problems			
	Computer Sage - MOCR 1 (2nd floor)			
	works OK @ QCC on MOC			
	and DSC. He feels problem			
	is not in comp.			
	Ecom - no change or problem			
	Singer - all asleep - good data			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				106
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
46+33	COC in Console - #3 <i>Criffin</i> Strike again.			
46+59	Reflex will update clock when guidance updates now - now vector is slightly degraded.			
	Sergeant - Sound sleep all nite - 9 hrs ago.			
47+09	Crew still asleep - will not wake them for awhile.			
47+13	MCC3 - .8 fps MCC4 - 2 fps Coming in 65 n.m. point of closest approach pay 4 or 5 fps more at LOI, but cost is out of SPS.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				107
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
47+15	PTC - biggest angle			
	pitch - 4 deg			
	yaw - 5 } within			
6 deg	10 deg half			
	cone angle			
	RCS prop 66 # behind			
	flight plan however			
	8 # different from A-10			
	at this time.			
	Both burns were on			
	Bank A			
	Ecom needs water			
	dump at 48 hrs. will			
	be at 85 %			
47+42	Jim Stokes - man made			
	another build & running			
	on another machine,			
	we don't have a DSC			
	at this time - this			
★	concerns the problem with			
	DC causing problems earlier			
	in flight.			

FLIGHT DIR MISSION LOG		DAY	REV	PG 108
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
47+47	CDR stirring a little - Surgeon. +			
47+53	FIDO - new version of computer program - will exercise during day, will need check plots more often			
48+00	Econ ended using Antenna			
48+07	Surgeon Thanks Buzz is awake. Now he thanks they are all awake			
48+09	Called - Buzz answered immediately. A-11 off how are our Systems - mce great.			
	flight plan update			
	Econ - started Charge on Btry B & water dmp.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				110
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	additional weather & cloud description			
	length about size of Persian gulf.			
	A-11 maybe next time if water dump we should split the dump.			
	B&C yaw rate decreasing			
	A-11 Can see Nile river up to source thru Sextant.			
	MCC waste dump affects optics - Dump 4:25 minutes			
	Telescopes useless			
	A-11 Sextant - you can differentiate between water droplets & stars.			
	48+56 Sextant would be quite usable at this time			
dump + 30				

FLIGHT DIR MISSION LOG		DAY	REV	PG
				111
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
A-11 48+58	MPAD Star Charts are most useful - no decent star patterns thru Telescope with LM attached			
49+41	A-11 O2 flow transducer worse accumulator cycle just barely caused movement			
49+56	Ecom - what we have seen so far the flow is about the same.			
50+41	CDR send & clear CK with FAD on errata - back page of buzzy ops checklist.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				112
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
51+09	uplinking State vector & clock update.			
	loads in & verified			
	A-11 roger			
<u>2200</u>	Terminate Charge on Bat B at 51+30			
	A-11 roger.			
51+38	Charge is off			
52+00	A-11 O ₂ ☒ H ₂ purge? Affirmative Going ahead with H ₂			
52+13	Purge complete all cells			
52+25	PTC - purging may have caused it to move out more - may have to restart			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				113
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
52+49	LMP report report of O ₂ flow sensor & our data is the same as we have seen.			
	Ecom looking at MAL procedures which use the O ₂ flow sensor as an a input			
52+57	Starting P-52			
	Star angle diff .01 difficult will torque to do at .3 rate			
53+55	reading up news to A-11			
	gas filters fine except with food bag & back pressure reduces efficiency leaving alone couple of hours helps the efficiency			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				112
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>54+50</u>	White Team on Shift LM/CM AP 1.58			
	Comm very noisy—			
54+51	HGA Data Good—			
	PTC Stopped at			
	P090, 40, R 263			
54+52	Bringing up the			
	CSM Cabin from			
	4.8 to 5.7 for start			
	of LM Press—			
	How far open is dir			
	02— Arrow about			
	10'clock, At the			
	20'clock it is about			
	.3#/hr, At 10'clock			
	it was about .9#/hr—			
	≈ 30° Travel from closed			
	position to 30'clock pos.			
55+02	Cabin 5.7—Terminated			
	direct 02, also			
	advised them to bring			
	back to CSM			
	• SFC Checklist			
	• New Rules NO/GO			
	• DPS/APS/RCS Limit			
	Cue CARD —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				116
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>55+11</u>	Wire TV to GDS			
	Excellent - showing			
	the Probe removal			
55+19	Probe has been removed			
	No dents or marks			
	on the probe -			
55+23	Removing the drogue -			
	Roll $\angle$ 2.05			
	LM Leak Rate is			
	.052 #/hour -			
<u>55+36</u>	LM Hatch is open			
55+42	Bozz in LM - Opened			
	the windows - completely			
	dry hit - visual			
	Inspection looks good			
55+47	Very clean - no debris			
	{ CDR 57-5800			
	{ OP2 } LMP 5800			
	Crew taking LM			
	data back to			
	CSW			

FLIGHT DIR MISSION LOG		DAY	REV	PG 117
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Very little debris in either			
<u>56+00</u>	ISA Placement back over the instrument panel -			
	Crew found the 16mm CRANK & asked what it was for - we told them -			
	About 50% of time we are getting			
	CSM hoses are causing a bit of circulation - comfort level			
	Don't forget H ₂ O Dump			
56+45	TV End			
56+59	EVA Light Charred - probably during launch - Light still works -			
56+55				
57+00	Water Dump Started - Down to 0 %			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS		FLIGHT EVENTS/HISTORY/BRIEFING		
56:50				
		MIT AND MPAD AGREE THAT		
		THE ANALYSIS OF THE P23		
		CISLUNAR NAVIGATION PERFORMED		
		ON DAY 1 AND DAY 2 SHOW		
		THAT M. COLLINS IS MARKING		
		ON AN HORIZON LOCATOR WHICH		
		IS HIGHER THAN THAT LOADED		
		IN THE CMC. WE RECOMMEND		
		CHANGING THAT VALUE TO		
		35 KM. THE QUANTITY IS		
		HORIZONTAL (1354, 1355) AND THE VALUE		
		TO BE LOADED IS		
		00001, 02134 (DOUBLE PREC)		
		P. FELLEMAN MIT R SAVERY MPAD		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				118
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
57+00	NEED TO GET BACK TO PTC By 58 hrs			
57+00	TV- Crew wants to terminate - but will continue if we desire - - PAO has enough			
57+02	A-11 told about PTC - by 58 hrs			
57+04	PTC Comm per Flt Plan			
57+04	Water dump terminated @ 0% A-10 Confirms			
	P-22 Sightings on both days were good enough to update the AH in the CMC - it will be updated to 35km, will generate load & xmit prior to start of PTC -			
57+24	P-22 in progress - Tweaking platform for PTC -			
	16 N 93 111 } Torque L ₂			
	128 } 014 }			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				119
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
57+30	Computer is high —			
	Star O ₂ & H ₂ TANK *			
	Cryo's started, will			
	leave all heaters in			
	Auto —			
57+44	Completed LM work,			
	potting probe &			
	drogue in —			
58+06	Starting PTC —			
	Picked up with			
	3 roll rate — OK.			
	Alt & contingency ch.			
58+14	PG F/2-22			
	Column 1	Line	New data	
		06	00001	
		07	02134	
	* Intermed Sc L.S. Oblique			
	& other data not stored			
	Pcd for redundant			
	component			
58+37	Crew must have changed			
	the CO ₂ canister			
	the PCO ₂ came down —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				120
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Advised crews that we wanted to update their obd data file			
71+20 110 FLT PLAN	1. Mon Sec Accum Qty 2. Sec Gly Rad vlv to Norm 30" then Bypass - If no decr in sec Accum Qty - Sec Gly/Rad vlv - Norm - Sec Cool ^{Loop} Pump AC-1 12 ¹² 4. After 3 min verify Sec Gly Disch - Sec Press verify 39-39 ³⁹ psia - Verify sec evap out T was chgd. 5. Sec Cool Loop Pump - OFF 6. Sec Gly Rad vlv to Bypass			
	Q+ We want to verify that we don't have a plugged radiator -			
59+21	Advising crew that we think their obliques were in wrong place			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				122
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
59+59	Terminating the PTC we do not know why it diverged - possibility is that crew was dumping urine frequently - however there is also the possibility that there may have been some venting - sure picked a good attitude - now we have no comm in this attitude - if we get him, have him roll to ~ Mode 2 on uplink - will try voice again - Crew receiving is loud & clear /			
<u>60+15*</u>	CMD RST - OMNI A we are stable - start PTC			
6+20	PTC Initiated - Looks good			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				123
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	6000 miles from S/C			
	4329 nm @ 2022 GMT			
60+49	Crew Asked where the S-IVB was we gave them the above figures			
61+00	Crew turned the voice off			
	EVA Flood Light, Right Side of CSU Hatch, cork covered, deployed when BPC is dehissoned 3+17 get NEAR RES DOND B			
	FDO -			
	MCC 1 2 fps - not recommended			
	POCA 62.92			
4 min early	LOI ₁ - 75+50+02			
	LOI ₂ - 80+12+00			
	with no MCC			
	54x6 53.9x65.6			
	Passing over biased lds site *			
	SUN $\angle$ AT PDI 10.9°			
	AT DOI $\rightarrow$ 56.4x63.3			

45 HRS
2 HRS

FLIGHT DIR MISSION LOG		DAY	REV	PG
KRAVZ (3)		7/18/69	54+30 → 62:30	125
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	# Shift Summary 1. The TV Today, & The LM IVT seemed to go well; entered LM at 55+36 → closed out at 57+44 2. We have a spook: (a) PTC went Ape at 58+06 & was terminated at 59+59. - it was offset $\approx 20^\circ$ & still not stable (b) It looks like we had about 2 hrs of venting show up in TRAY - 56:41-58 (c) All H₂O dumps & urine dumps are accounted for - we don't think LM was venting. (d) No Answer 3. Updated the CMC & Crew Checklists for AH based on P-23 data. 4. Cryo - Heaters - Auto (4) FAWs - OFF 5. Updated most of orb'd data - (a) Sec Rad/Loop Test (b) M.R. Card (c) DPB/APS/RES Card			

56+41
58+4

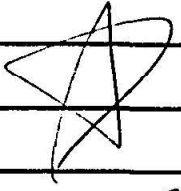
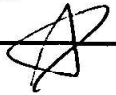
FLIGHT DIR MISSION LOG		DAY	REV	PG
				126
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Block #4			
	HORIZON NUMBER ✓ updated @ 57+30			
	MCC-4 - PTC - O.D.			
	SLEEP TIME -			
	PTC -			
	SPS PC STORY TO CREW??			
	Adnt Cnpt CKs -			
	ORBIT DETERMINATION - MCC-4 -			
	BREAKING UP OF PTC			
	SLEEP TIME 61 - COMM OFF -			
	SPS STORY ON PC - <u>US OR GREENICS</u>			
	RNT CMPT CK -			
	LUNAR CHECKLISTS -			
	61:23 COR			
	61: 50 LMP			
	? CMP unplugged -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				127
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	TEAM BRIEF			
	F/ 65 nmi closest approach			
	62.9 previous Target indication -			
	POST LOI 61.5 x 170			
	LOI 2 Targets 54 x 66 nmi -			
	64:30 - New estimate on batch -			
	Good story in known -			
	R/ FEI PC+2 3400 fps 12065			
	Within 7 fps of free return			
	@ 95 GET GET splash @ 145			
	MPC -			
	15 MIN ASURICAPPT UPDATE			
	LATTER PART OF SHIF -			
	COMMITTED TO GOING DRUNK MODE			
	AOL 111 GET 77:50 6000 fps			
	QUICKEST RETURN POSSIBLE			
	G+ FOR DELETE MCL-4, PS2 TO OPTION 3			
	PICTUREFORMAT -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				128
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	GNC - NO OPEN ITEMS			
	OPEN ITEM - EXPLANATION OF PTL			
	UPSETTING			
	PC STORY - BY GREEN TEAM -			
	CUE CARDS GO FOR LOI -			
	49 TH DOWN FROM FLIGHT PLATX			
	<u>EECM</u> -			
	ATLEAST CRYO O ₂ STR, FC O ₂ FLOW			
	RATES SKIPPED A LITTLE -			
	----- EXACTLY -			
	FC ^{#2} TCE STILL ACTING AS			
	BEFORE - PERIODIC BURP -			
	ON ONE CELL ON ALL 7, 8, 9, 10.			
	O ₂ FLOW RATE - CREW PROCEED, MAL			
	PROC FOR BAD XDUCE.			
	DURING LAST LM PROCS, METER			
	ROGGED - THINK TAKE 5 TH /HR			
	TO 100 VICE 13 TH /HR NORMALLY			
	O ₂ RESONANCE AFTER WAKEUP -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				129
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	RONT CHECK PRIOR TO LOI, ACTUALLY			
	FLOW SEL LOOP THRU RAD			
	VICE LEAK CKAS BEFORE.			
	INSTR READOUT NOT HOOKED UP SO			
	PRUBE TGT PIS OFFSCALE LO.			
	PRUBE IS STOWED IN TUNNEL, NOT USABLE -			
	PTC UPSET - ELECTRICAL			
	<u>CONTROL</u> - NO TM DURING INGRESS			
	- LOG RADAR SELFTEST 1-2-1 AS			
	PER CHECKLIST			
	- SPAN - STRUCTURE MECHANICS			
	VENT DESCENT BEFORE ASCENT			
	(SECOND TIME)			
	OPEN -			
	- LOAD IN NOMINAL NUMBERS -			
	Δ numbers currently loaded			
	WITH WRONG SIGN -			
	99 GET UPLINK -			
	- ABS COMP NUMBERS HAVE WRONG			
	SIGN IN CHECKLIST			

FLIGHT DIR MISSION LOG		DAY	REV	PG 130
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	<u>TELCON</u> - CHECKLIST VERIFICATION - - HOOP/BN ITEMS - - WATER TO DRINK, O ₂ FOR AUTO REPRESS - LEAK RATES < .1 #/HR			
	<u>CARCON</u> - <u>SURGEON</u> - ~ 62 HOURS ASLEEP - <u>O&P</u> <u>APD</u> -			
	<u>FAD</u> - CAN STILL SLEEP UNTIL 71GET (2 EXTRA HOURS)			
	<u>NETWORK</u> - GOOD SHAPE - PARKES TEST ON SIGNAL STRENGTH - WILL LEARN ABOUT SIGNAL STRENGTH FOR TV & PLES - TEST OVER AT GET 60 - CONCLUSION AT 60 GET -			
	<u>GUID</u> - RTEC HAS WRING STARTING ADDRESS - LOC PREPARED RETSMOTT - PREPARED LOCATIONS - FOR EVERY LM UPLINK OF RETSMOTT WILL DO ALINOSY LIVE CORRECTION			

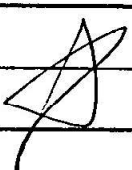
FLIGHT DIR MISSION LOG		DAY	REV	PG
				131
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	UPSTARTING ADDRESS -			
	SPAN - NO COMMENT -			
64 -	GNC - KEEPUP PTC PLOTS -			
	ECCOM - JOHN ADAMI HAS GONE OVER ALL CHANGES AS RESULT OF OLFUX X PULCH			
	SOME WILL REFERENCE TO CHECKLIST -			
CLIFF	SUGGEST REFER TO CL. PAGES & NUMBERS VICE NAME (BANK CONTAMINATION) - KEEP MARM DOWN, NOTHING ELSE WE CAN DO ANYWAY -			
64/06	GNC - RCS REPT 4 th BELOW A10 -			
	GREAT -			
64/11	E 72% HBR ON OMNI SWITCHING -			
	REST LBR			
64/17	CURIOSITY - WHY DID YOU DO THE MCL -			
	BANK A ALSO?			
	WOULD NOT WE HAVE LEARNED MORE			
	BY DOING EVAS BANK A, MCL BANK B?			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				132
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>64/21</u>	MEETING TOMORROW AT 10AM W GMLCW			
	ON SECOND VENT OF DESCENT TANKS			
	NO BIG DEAL, I THINK IT HAS TO DO WITH			
	FR. MECH SOME TIME AFTER LIFTOFF			
	LIKE DAYS - BUT WE'LL SEE -			
<u>64/33</u>	<u>FIDO</u>	SELECT PEOPLE DON'T WANT TO UPDATE		
		WITH THIS BATCH -		
		2 MORE HOURS DATA IS NOW WANTED		
		BEFORE ANY UPDATE IS ACCEPTED -		
		<u>58:09</u> IS STOP TIME FOR PERTURBATION		
		SO LOOKING AT DATA AFTER THAT TIME		
<u>64/36</u>	<u>GNC -</u>	SECOND CREWMAN PERFORMED A		
		URINE DUMP DURING 20 MIN		
		ATT HOLD PERIOD -		
		NO CONCLUSION YET -		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				133
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
67/09	62 hpc			
	± 2			
	Grentshape for LOI -			
	59.42 for hand 3			
	59.6			
	$\therefore$ No MCC 4			
	7 1/2 data after perturbation			
67/10	No MCC-4 official -			
	.5 tps			
67/31	N/ Prel analysis			
	1db worse than calculated			
	That is adequate -			
	Wing is 3db better than prime -			
	Log on wings -			
67/47	PTC Tight $< 6^\circ$			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				135
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Dick Thomson & Jack Knight			
	Activation			
	Descent			
	Surface			
	Rd 3.			
	Cont -			
	All renewal Tonight by these men and			
	SSR and checklists are correct.			
	There are some minor items that our			
	men might do differently, but they			
	some to be are optional items.			
	Thomson will start a summary of these			
	preference items and pass on to next shift.			
	We do not know of any items that the other			
	shifts have found incorrect - but we			
	will end up tonight with a list of preference			
	differences - as it is too late and			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				137
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>69/12</u>	"LMP might be stirring a little bit"			
<u>69/14</u>	Het/ Reporting S/C is calling -			
	We are not hearing here -			
	GSFC voice heard there -			
	Handing over to MOD & checking lines -			
<u>69/19</u>	MCC Good Morning -			
	MCC MCC-4 not required - let you sleep in till			
	GET 71 hours -			
	A1 - Roger - Collyer at 71 -			
	(That was Buzz - was easy to convince)			
<u>69/25</u>	Apparently, The S/C voice was coming			
	Thru - several positions heard it - although			
	very weak. The first exchange with the			

FLIGHT DIR MISSION LOG		DAY	REV	PG <u>1326</u>
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Cap Com was also weak 1 but then			
	strengthened up - So we probably just			
	missed it - checking tapes -			
<u>69/29</u>	Sungam - looks like both are back to			
	sleep - did not even see CDR surge -			
	FID's Another Update -			
	61-6 hpcr - outstanding -			
	Good for new MCC -			
	Heg - I just heard the White			
	Team ate all the cheese -			

FLIGHT DIR MISSION LOG		DAY	REV	PG 139
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	SHIFT SUMMARY			
	① NO MCC 4 - LAST UPDATE HAD CLOSEST APPROACH AT 61.6 nm - FID very happy -			
	② FLT PLAN UPDATE IN BOOK			
	③ NO NECESSARY CHANGES IDENTIFIED IN C/L. THORSON WORKING TOWARDS A SUMMARY TONIGHT FROM ALL SHIFTS. SO FAR ALL I'VE HEARD ARE A COUPLE PREFERENCE ITEMS.			
	④ CANNOT FIND ANY REASON FOR UPSETTING PTC. LAST RESORT IS JET DRIVER GIVING YAW RATE AT KOLL RATE INITIATION. HOWEVER, DATA AT GDS AND THEY ARE ASLEEP - GNC'S COORDINATING TO RECOVER IT TODAY WITH GDS.			
	⑤ YOU CAN DISCUSS SPS PC WITH CREW. WE HAVE NOT HAD A/G WITH THEM EXCEPT FOR 15 WORDS.			
	⑥ CHECKLIST CHANGES DUE TO O₂ FLOW			

[illegible]

FLIGHT DIR MISSION LOG		DAY	REV	PG
				141
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
70/03	SURGEON FIGURES COR MOVING AROUND -			
70730	Green Team on Shift #4			
	F100 - onboard Charts & monitoring looks good on this traj.			
	Juel - standing by for vector for end loads & pad			
	B&C - 1) Data at BOS to evaluate last nite PTC problem.			
	2) RCS - total 53 [#] down 4 [#] below A-10			
	3) Additional P-52 to verify uplink numbers we put in			
	4) pc writeup - we & SPAN agree			
	ECom 1) monitor sea loop check - crew has 5 min			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				142
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
70+50	Ecom recommends storing Cyros gun to LOI to avoid master alarm.			
71+02	calling the crew to wake up. A-11 roger. Crew status CDK, CAP 7.5 LMP 6.5			
71+25	Viseuse pc site situation with crew - A-11 roger			
	* George Low and I agreed to the statements made.			
71+38	Ecom wants to start Cyro balancing.			
71+43	A-11 got quite a few pictures			
	h2 2 } hrs off			
	O2 1 }			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				143
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
71+52	Earthshine Earthshine thru window is bright enough to read book A-11			
	Along ecliptic line can see light to 200 kilometers			
71+57	ECom - rad out temps of 5 deg may get low enough to turn on rad Ltrs			
71+59	A-11 CDR can see stars occasionally in way - can see clearly now state that they are in darkness			
72+02	FIDO - CDR cannot see horizon at T ₁₉ -2 but CDR P can this relates to couch positions			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				144
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	ECM missed antenna switch. The cmd did not take			
	A-11 went to high gain			
	See loop check			
A-11	went to flow in rad Qty from 40 to 36 to & stabilized			
	as expected - rad are cold			
	bring up DSC			
	LM download from MAD ??? <u>Harmonics</u>			
	{ See rad flow check complete & satisfactory A-11 good deal no more meeting ECM concurs			
72+22	P-37 Block data correct			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				155
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Change Batt A			
	LOI ₂ - R-000, P-196, 359			
78+22	LOI ₂ - TAT load + SV @ Sites			
	PAD READY			
	AOS -			
78+25	- Poo + accept up linking -			
	014° LAT NORTH @ PDT			
	- Dark Pit on Back side - Fresh			
	Contrast			
	Good TV -			
	Difference in N ₂ tank			
	2350 - B 2270 - A			
	Steady on theta - then drifted			
78+31	Smyth's Sea, Etc			
	CM being pulled down toward earth -			
	Register 3 throwing -			
	78+53 terminator -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				156
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
78+59	TV Completed - went all the way to terminator -			
	SPS - somewhat hot - - leak looks linear while open			
79+05	Confirm Up TLM / Norm			
79+06	Up TLM Norm now -			
	Commands going in Normally			
79+16	Rads - peaked out @ 60° - looks better than expected			
	NEED TO update TEI ₄ PAD due to large mid course			
79+20	P-52 - Completed - OK.			
	Go For LOI ₂ -			
79+37	P-30 OK. -			
	Los - Go -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				157
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	@ AOS - 5.4 psi in CSM - Direct			
	LM pressure 3.7 mm			
80+34	AOS - GDS			
80+34	LOS - GDS			
80+35	AOS - GDS, HAW			
	- 0.1 LOI ₂ burn			
	- 0.0			
	- 0.1			
	- 5.2 -			
	Fuel 36.2, O ₂ 36.4 +50			
	N-94 66.1 x 54.4			
	Told A-11 5.4 psi is fine			
	CM/LM ΔP slightly above 1 psi			
80+41	Carrier Hand over to HAW - LOS			
	No Comm - probably OK.			
80+47	- Voice + HBR - back -			
80+47	Pressurizing EM			
80+50	charging Batt A -			
80+50	DSE Pump in work			

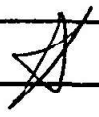
FLIGHT DIR MISSION LOG		DAY	REV	PG
				158
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
80+58	None appear to be higher than surrounding terrain			
	Miss distance 07° NORTH			
	Expected Mil 59.9 x 59.4 @ CDH			
81+05	P-52 completed looked OK			
	-			
	Verify - audio Center			
	- on S band			
	by trying VHF			
	if S band			
	Go Normal Voice, LBR			
	See X-Ceiver			
	+2005 Docking Angle @ 56 hrs			
81+23	- Probe & Drogue stowed - almost ready to open LM hatch			
81+25	A-11 ^{crew} in LM - Docking under same			
81+28	Cannot get Reprss from close to Auto without big bang			

FLIGHT DIR MISSION LOG	DAY	REV	PG 159
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
81+30	Water in CSM for first time - how do we suggest they get rid of it On aft bulkhead		
	Water - F-10 -14 suck up in waste/ dump system if too much to mop up		
	53.9 x 65.4 - confirmation of MNVR		
	Tracking Data - confirms - previous data -		
82+29	Clock update - send it up now - think we can get zero @ DOI - will send up with State Vector		
82+32	AOS - Data + Voice		
82+41	MOC down - going to DSC Change over O.K.		
82+47	- P-22 looks Very good -		
82+51	DSE DSC DSC coming on line up & running		
82+53	A-11 - DAP thruster activity - Pitch accel, Roll & Yaw in Rate Cmd -		

FLIGHT DIR MISSION LOG		DAY	REV	PG 160
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
82+57	Can see entire landing Area			
	EECOM has procedures for O ₂ flow meter failure - decided not to read them up unless needed - the only normal one is flow to prevent back Contamination and a simple "crack Direct O ₂ Valve" should suffice -			
83+02	On GM power -			
83+03	Dump Water to 25% on backside			
	Descent T/B B/P nice grey			
	c/b out - (Descent ECA)			
	OK now -			
83+05	GDS feeding Data Voice thru wrong buffer ? ★			
	OK now			
83+06	LM Data Control, Telecom - D.K.			
83+10	Eagle Call - 4x4 - but not in attitude yet			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				161
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	- Control data - 6.4 #/hr She			
	Columbia in sleep attitude			
	LBR-			
	Reading LM 5x5			
83+15	HBR Data - Down Voice B/U -			
	5x5			
	{ S Band Voice to Normal			
83+18	{ HBR Data - Voice loud + clear			
	both ways			
	Uplinking CMC -			
83+20	both 70 mm & both 16 mm cameras			
	check out			
	Eagle 5x5 on 85' HBR			
	HBR data in & out -			
83+23	Solid 4BR - Voice 5x5			
	Guidance Has Computer uplink			
	problem			
83+26	Uplink Completed			
	27.0 volts on low taps - Securing			
	LM Cams			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				162
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
83+33	- LM Data off -			
83+38	LM on CSM power			
83+39	OPS pressure - 5750 psi			
	① APS oxidizer will give MC+U She - 6.4 #/hr ② - Thruster firings in P-22 - CMC was trying to hold 5° deadband, Pitch got cross coupled into Roll + yaw Recommend CMC free on SCS in all 3 axis in main impulse ③ Consumables OK ④ balance Cryo tanks H₂ tank 2 2 Hel O₂ tank 1 1 OFF terminate Battery charge ⑤ P-22 results very good ⑥ Avoid using tunnel preload Mal procedure - F11-9			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				163
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
84+30	AOS - passed data to crew			
84+40	CDR 11012 CMP 10013 CMP 09015 No Medication			
	54.4 x 65.2 - 2 Rev tracking			
84+42	Crew plans to take Monocular into LM - do we care? 0.7# - No - but we didn't tell crew			
84+46	Landing Radar Antenna failures provided by Guido - in front of this log book			
84+48	- 40st Lock - 			
84+53	- Voice back - 15° Pitch 270°			
	AOS - was auto matic coming around corner			
	Auto RCS - C-3 - disabled why not all?			
85+06	- Quad C - all now disabled			

FLIGHT DIR MISSION LOG		DAY	REV	PG 164
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
85+11	Trying to drop lock to see if auto Reag will back - told A-11 to give us a hand in 3 min			
85+12+30	- Carrier off - Carrier OK			
85+14	- Reag. .3 sec moved forward 40°P 240° yaw 275° y, +15° Pitch on wheel settings			
85+16	- Repeating test with longer down time			
85+17+30	Down			
85+18	Carrier back up -			
85+19	Zero the optics - 255 45° - angles stayed there			
85+30	Crew still eating - will chlorinate and change CO ₂ sensor			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				165
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
86+05	- Comm problem last Rev was on the ground - bad power supply @ GDS			
	CLIFFS CRYO PLAN FOR NITE-TURN O ₂ TANK #1 & H ₂ TANK #2 HEATERS OFF TO BALANCE TANKS			
86+10	- PL PLANE CHANGE NOW 1002 FPS - will not need to do unless > 20 FPS			
86+30	AOS - 2 min late ?? Auto ReAcq - OK.			
	N ₂ Ball Valve Story - SPAN + GNC			
	1) Linear leak - Can outlast SPS fuel ga			
	2) CSM Rescue - Single tank unless A & fails -			
	3) TEI - dual tank			
	P-2 Control mode - should use all CMC for all SCS (ice mixed) - should increase deadband to 50 (att min rate work) att deadband max, rate low this is for case of LM attached because of pilot training.			

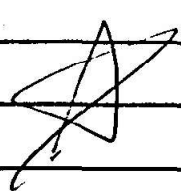
FLIGHT DIR MISSION LOG		DAY	REV	PG
				167
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	MARCON TO BLACK CHANGE OF SHIFT NOTES			
	(1) Comm lost @ 84+48, in middle of pass after auto ReAcq at AOS - Ground problem - did 3 more auto Reacquisition with no problem - crew told OK to sleep.			
	(2) GN₂ - SPAN + GNC think to stick with Single bank until TEI, use bank B for CSM Rescue if A fails, do not troubleshoot			
	(3) LM Comm great all modes 210' dish, OK^{85'} except HBR. noisy with Normal Voice			
	(4) all LM Systems go - She 6A^{#/hr} APS Oxidizer will trigger MC+W due to He absorption			
	(5) FIDO looking at Plane change - not now required. (10.2 fps)			
	(6) Crew wants to take Monocular into LM for DOI - no sweat, but we didn't tell them			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				169
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	(7) P-22 data great - stick with present control configuration due to crew training only costs 25# RCS extra			
	(8) Crew says will not enter CM early tomorrow			
	(9) Landing Radar Failure cases in front of Log book -			
	(10) Cryos turned off - O ₂ tank #1 H ₂ tank #2 to balance quantity			
	(11) updated CMC clock to get right for DOI			
	(12) Changes to flow meter procedures in book - don't need to read up unless problem arises -			
	(13) Tuned Malfunction procedure on page F-11-9 no good - crew knows SPAN still working			

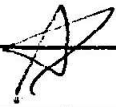
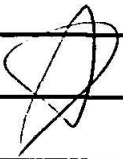
FLIGHT DIR MISSION LOG		DAY	REV	PG
				(170)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	RETR - TEI-11 onboard			
	- TEI-30			
	<u>FIDO</u> - (1) Tracking data for Rev 14			
	Checking start constants,			
	Biases T ₂			
	(2) Out of plane - higher in latitude			
	running a little north -			
	0.1°, 10K feet.			
	locally -			
	No possibility of plane change			
	if it keeps up the way it			
	has been			
	(Rev 11)			
	(3) 15 minutes of data -			
	radial 100'			
	dist rad 100'			
	out of plane 6000'			
	LEAD c/o vs keat/s speed -			
	Velocities 1/2 fps			
	All very happy -			
	Some stations ad Dec.			
	GDS - MAP - ASC -			
	★ (4) Plane Behavior			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				173
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
89/27	F100, on land solutions, RW 2-73 The data are consistent with the A10 results. They are in the right direction for ^{However,} Trends; it is still early to be sure of the absolute magnitude of the out of plane displacement for PDI. So encouraging, continue Bunch			
89/40	LOS - All normal - Checklist Review during pass LOS -			
90/26	A05 - New 9 - all normal -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				174
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Rev 8 -			
90/50	E1 - RADOUT PEAK 66° - Same as last rev -			
90/51	Surgery LMP unplugged - Taking a dump - CSM all same - ops normal			
91/07	LMP plugged in back asleep -			
91/37	LOS Review POSTROCK, MR, DP Down Manual Ascent -			
92/23	AOS Very weak signal - not enough to lockup on -			
92/30	AOS now - good signal - about 7 minutes late -			
	S/C - 60			
92/43	RADOUT peak Temp 65° (earlier) STPble rev 10 rev -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				175
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	This latitude business does not seem			
	to be as well behaved as the FIDO's could			
	be. The net effect will be twofold -			
	① yaw steering during R.P.			
	② CSM plane change			
	(For lat miss of $.15^\circ$, pc			
	would be ~ 30 fps.)			
	FIDO has a plot of the latitude vs.			
	Revo. It is still not very conclusive,			
	but looks to be following the 13 order			
model, although $.1$ to $.15$ higher than				
it. FIDO Bostick does not think it is				
a big thing but worth noting.				

FLIGHT DIR MISSION LOG		DAY	REV	PG
				(176)
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
93/24	GNC There is a 500# difference			
★	between the O.T. and our current weight estimate. It is not understood at this			
	Time - I found out accidentally.			
93/33	Wakeup call			
93/35	LOS			
	The GNC discrepancy is turning out			
	to be due to computation of flow for LOS-1 -			
	Crew readings were used & come up out			
	400-500# lower, i.e. conservative. TM			
	on PUGS shows 400-500# more SPS fuel.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				178
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Note our WT discrepancy still exists			
	Currently we are 500 [±] lighter than			
	nominal on crew read out for LOI 2 burn			
	calcs. If we used RGS TM, we would			
	be 650 [±] lighter -			
	No explanation,			
<u>94/4</u>	AOS - data -			
	MCI - STG by -			
	GNC - Good Quesds - stable -			
	EEcom - looking good -			
	All Hw is EKG data in LCG -			
	MCC Good data on LMP -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				179
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	SUMMARY —			
	① CSM is ~500# lighter than nominal — no explanation —			
	② Fido story on latitude — Interesting but no effect.			
	③ Rad out Temps peak 66-65°, stable each rev.			
	④ SM RCS — 83° below flight plan			
	⑤ Very Quiet Hight. Auto Recog was good every time except previous rev ~ 92:23. AO 5 was 7 minutes late at all sites, no explanation.			
	Probably some HGA lock problem.			

FLIGHT DIR MISSION LOG		DAY	REV	PG 180
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	(6) Undocking & Separate Flight Plan Times			
	DOI-ROI are FIDO Times ~2min			
	earlier than flight plan -			
	(7) O ₂ flow during Accur cycles -			
	<u>Xducer still same for use - but</u>			
	for accur cycles - sometimes you see			
	the flow & sometimes not. EECOM thinks			
	he can correlate it with sun-shadow			
	cycle -			
	(8) STORON LM Cam results in			
	Maroon Notes - (210 good for HSR)			

FLIGHT DIR MISSION LOG	DAY	REV	PG 101
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
94/48	GNC - SPS perf as stated in flight plan,		
	66,740 [#] /sec flow rate -		
	67.44 [#] /sec flow rate computed from		
	I/F pressures, etc. So engine is flowing		
	<u>more.</u>		
	40,800 pred SPS weight at 40 sec.		
	40,600 40 SPS weight.		
	↑		
	So we stated out 200 [#] lower than flight		
	plan. LOI-1 difference would be .7 [#] /sec		
	x 360 sec = 250 [#] lower. For total of		
	450 [#] lower - Men are confident the current		
	open numbers are correct.		
94/54	MCC - TEI 30 Blk data -		
	R Bach -		
94/56	MCC - Consumable Update -		
	R Bach		
	MCC - AI 500' above Idg site -		

FLIGHT DIR MISSION LOG		DAY	REV	PG
KRA102		7/20/69	L-11	184
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
95+41	White Team - Descent Crew in LM Pressurization prep - All looks good.			
96+07	AGS Abort Constants will be voiced up, the LGC Constants will not require update.			
96+17	Cam DAP Load CSM wt 36,651 LM wt 33,627 Prim - 0.72 Yprim + 0.51			
96+20	CSM AOS - LBR LM LBR - Near Attitude, 37° out in roll - Voice 3X3 much Basic Ground Noise -			
96+23	Powering up the IMU - B/U Voice is poor - turn 2 voice to voice NORM voice is better Eagle is 4x4			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
96+27	Doo & Accept - P-27			
	Cam 2, V.			
	L.S. Reframat //			
	P-22 Pad			
	98+37+35			
	98+42+44			
	(04 N)			
	DAP update (see prev page)			
96+31	Rock <u>< + 2005</u>			
96+32	LGC updates complete			
***	{ Think crew threw end 1st sw on back side of main — Recommend all DAP 1 st in R2 - B3 & C4 off WAS performing Roll Ct with A only CMC - Optics zero Cycle Optics zero off then / on.			
(11001)				

FLIGHT DIR MISSION LOG		DAY	REV	PG
				185
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
96+31	PRI EVAP Flow			
	LQC Self Test			
	Sec T/R - P/A Good			
	Voice & DATA			
96+36	Act 29 - ON			
	Steerable Antenna			
	- HBR/			
	Nice Lock on - Biomed			
	Right & PCM H1 -			
96+38	Well Ahead of Flight			
	PLAN -			
97+05	Glycol Pump - #2			
	Did not copy Self Flow			
	H2O Sep Check -			
*	We have data on CDA			
	Biomed.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				186
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
96+49	E memory Dump			
96+50	Dump complete -			
	Captured E mod -			
	Starting Playback			
	Still on Pump 2, ~10			
	mins -			
	About 30 minutes ahead			
	of the Flight plan -			
<u>96+57</u>	Activation - 18			
	Verify back on Pump #1			
	LM Pwr - 95+54+00			
	Booze back in the			
	CSM -			
97+01	Simplex B Check - GO			
	Simplex A Check - GO			
	Both S/C			
	LGC/CMC Clock sync			
	VO6 1265E -			
	Clocks sync within 0.3 sec			
	TEPchem update -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				187
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
97+08	Crew starting into Docked Coarse Align - Coarse Align Looks Good -			
	LM GYRO TORQUE / 2			
	X - 00.060 Yaw (OG)			
	Y + 00.620 Pitch (IG)			
	Z + 01.080			
97+24	V42 - Fine Align Reading LMP - Y 00.060			
	01.080			
	DN Voice B/O } Blowed OFF } Fwd Omni } *			
	Crew Performing Asc Battery Check -			
97+27	Ascent Batts Look Good -			
	EDA 37.0			
	36.9			

FLIGHT DIR MISSION LOG		DAY	REV	PG 188
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
97+29	E Mod 12 GO —			
98+50	Omni Switch 30-45"			
	Loss of Data —			
	DIDA's conflict with			
	people (MIT) in bldg			
	45 —			
	Bldg 45 computes a			
	smaller bias than			
	we did —			
	Over # Y +.040			
	Z +.029			
	PIPA bias terms			
98+13	SEP PAD			
	100+39+50			
	P 007			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				189
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
98+13	LM NOS —			
	NO Voice — LIR TIM			
	AGS Abort Const — PAD			
	SS —			
	Eagle Tried 2 BAND			
	HGA — will not get			
	LOCK in P-22 Attitude			
	LM 33,627			
	36,651			
	P 00/470			
	R 00/589			
Gbl Trim	***			
	Eagle normal voice —			
***	MARKING site 130 <u>prime</u>			
	for P-22			
	← Confusion — re the			
	Ldmc 130 Lat/Long/2			
	& Altitude —			
	Note Ldmc 130 is now 130			
98+34	Starting DAP DATA			
	LOAD & Throttle Test			
98+39	In dap set — GDA			
	Throttle Test —			
	Crew got RCS Flags			
	due to fact that			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Auto Optics pointed			
	a little north of <u>130</u>			
98+43	P-22 MARKING			
98+46	MARK Completed -			
	Going to Acc Cmd			
	All 3 Axes - some			
	thrustor firing -			
98+49	DATA 110 -			
98+50	✓ Reacq on HGA should provide HBK data			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				190
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	the POWCS Auto is			
	selected test w/ores			
98+41	starting Throttle			
	Test — Act 47			
	Soft stop — OK			
	FRP — OK			
	Throttle Test — <u>OK</u>			
98+44	RC2 Press —			
	Gear deployed			
98+47	— starting RC2			
	Press —			
98+48	— CC → AGS Abort Const			
	AFT Onw 1			
98+51	LM HBR Steerable			
	Gear deployed —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				191
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	V96 → to terminate			
	Integration			
	Readout 404, 5, 6			
	expected ± 6 expected			
	to be zero			
	-13493 404,			
	405 & 406 —			
	<u><u><u>0</u></u></u>			
	After undocking			
	will also load			
	All zips —			
99+01	— Clarified the			
	405, 6 All zips			
	prior to & after			
	undocking			
99+03	Starting drift ck			
	CSM	LM		
	358.64	30374		
	02073	20078		
	35954	00053		
99+06	AGS K Factor —			
	Drift check is			
	GO —			
99+14	AGS — Align & IN			
	GO			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				193
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Lat 0.780 N			
P-22	2.37022 E			
DATA	Rad 937089			
	update RLS —			
	+ A02-10 All Go +			
	MPT DOI 101:36:14}			
	PDI 102:33:04 }*			
	- DOI Pad			
	101+36+14			
	Avx - 45.8			
	Vx - 000			
	Vz + 9.8			
	ATB 30sec			
100+16	LM LBR			
	DPS Press - OK			
	Eagle undocked -			
	Looks Good -			
100+18	POO & DATA —			
	Starting yaw move			
100+19	Don't Loic like we			
	will hit steerable link			
	updated			
	Pads - DOI			
	PDI			
	DOI Abort			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	CSM is about 180°			
	out in Roll —			
100+28	CME in P-41 Looking			
	good* was about			
	90° out in the Roll — starting			
	into attitude			
	YO, P-20 HGA			
	After end of Roll			
	MNR —			
100+32	CSM AOS —			
	Voice & Data — <u>Go</u>			
	Five Looking Flying			
	Machine			
100+39+50	— Separation			
	— X 2.5 RO, YO, P17			
	Disk 4.9 =			
	EUS 105.4 //			
	TERMINATE AVE G			
	≡			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				194
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
100+29	YAW Complete			
	LGC P-27 update			
	LM 2V			
	DOI			
	PDI			
	NO PIPA bias			
<u>N85</u>	R/R in LM probably			
	due to fact that			
	CSM 2V was old—			
	v			
100+32	Go for Sep—			
100+42	Started L.R Activation			
	& Self Test —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>100+47</u>	VHF RANGING			
	<u>Solid Lock - 270W</u>			
	<u>Pad CSU - Rescue</u>			
<u>100+52</u>	CSU in P-20 for			
	Rdz NAV/Sxt & VHF RANG			
	POO & ACCEPT -			
<u>100+53</u>	Some unexpected			
	Threat activity -			
	Mike sez we may			
	have bumped ACA -			
	Dumped 316 min of			
	LM Data -			
	<u>TIG & N 81 & AT</u>			
	<u>DOI</u>			
	<u>PDI</u>			
*	(Note ctl power + dir 2 -)			
	<u>off</u>			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
74				
<u>101+06</u>	CSM P-32 started			
	Advised on P-76 to			
	add HALF break time			
	to TIG—			
101+14	Advised CSM— to			
	PASS to Eagle			
	to select AFT Omega			
101+15	CMC P-52 is GO			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				196
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
101+03	Completed P-30 Targeting for <u>DOI</u>			
101+05	Eagle - attempting to drive RR w/o designating - now we did			
101+07	Started <u>P-52</u> About 10 min behind in preps with <u>P-52</u>			
	101+36+14 DOI →			
	Lost Data - if we cannot recover - use AFT OMNI -			
	<u>P172</u> <u>Y-14</u>			
	V5 N9 00107 Alarm - 5 MARK PAIRS - <u>00003</u>			
101+20	Torqueing LS -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				197
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
101+21	PLACE Blamed to CDR for Descent * we got it —			
¹ <u>101+24</u>	Telcom — GO <u>LBR</u>			
102+28+17	LM LOS-prior to DOI Displays — <u>22 channels</u>			
<u>102+12</u>	Battle Short			
102+16	LM AOS — LBR			
-16:00	LBR in Attitude			
-15:30	SHE-GO			
	Burn Attitude —			
	on time Burn Report			
	-0.1	X & Z rolled		
	-0.4			
	-0.1			
-14:50	LOS mad LM ZERO			
	thought crew going screen bc			

FLIGHT DIR MISSION LOG	DAY	REV	PG
			198
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	P-63 TIG GO — } Vectors — GO — }		
-14+06	AOS LM — In Attitude — AGS Residuals ^{Thought} sidelobe		
	-0.1		
	-0.2		
	-0.7		
	N86 ΔVz 9.5 vs		
	Pa d 9.1 ==		
	ha 57.2		
	hp 9.1		
-12:40	SON Check +.19		
	GO +.16		
-12	GDS 210 Risk data +.11		
-10:30	GDS DATA-GO		
102:21	Losing DATA — GDS & MAD weak SA.		
-10:30	Lost EAGLE — HAVE		
	WIM REACQUIRE —		
-9	Telcom — TRY ON WIM — not Rec		
	— Side Lobe Lock —		
-8	MAX BESKIN REFLECTIONS		
7:26 - 8:26	AGS INIT GO — still 210 data		
-0:30	RADAR & VISUAL		
	CHECKS ^{vis} 50K Perilous/Radar 53K		
	500 ALARM — Def #1		
	BACK → BACK to Auto		
	& Proceeded		

FLIGHT DIR MISSION LOG	DAY	REV	PG
SITE/ACQ/LOS	Los of 1 W Down 199 VIA CS RIGHT EVENTS/HISTORY/BRIEFING Delayed		
-5:00	GO Power Descent —		
	AFT OMNI for		
	Descent —		
	Fwd OMNI for YAW		
	Over		
-	4:40 Lost data		
	4:00 Data BACK		
-3:30	LEAR 12 GO — AGS AGO GO		
-3:00	All GO —		
-2:30	DATA is RATHY		
	MSFN see may be		
	A little Low — OMNI's		
-	P-212 Y 37		
	GO — A little low —		
	2 BAND SS — Low —		
102+33+04	- Arm ^{Now on}		
	- Village ^{steeply}		
	- 10% — ^{weak}		
+10"	Lost data —		
+36"	AFT OMNI ^{Post Thrust}		
Delayed on CS	VIA CS		
+50"	Lost MSFN —		
1+00	20 fpa — Residual		
	down TRK error in		
	Radial		
1+10	GTO — GO — ETRK		
1+40	Negative MSFN		
	1+50 Doppler GO		
	Restart MSFN		

FLIGHT DIR MISSION LOG	DAY	REV	PG
		730	201
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
8+22	P-64	TGO GO	LR Pos 2 TGO-OIC
9+04	GO FOR EDGE		HAVE LR CONVERTED
	3K		
9+40	1201	ALARM - GC	
9+36	- GO -		
9+50	AGS	Alt update	
10+00	- Here we go		
10+20	340' 1.5 h		
10+25	ATT Hold	- only	
10+40	P-66		Calloots
10+48	300' 47 →	h 2.5	
	200' 5.5 h		
11+28	→ Low Level	- 120'	
11+55	→ 60"		
	Picking up dust		
12+27	→ 30" h 2.5	30' +	
	→ 16" -	+ Contact Lt +	
13+00	LANDED	- Very smooth	
		Touch down	
	14+2	- GO -	
	Ti stay		
	Vent fns QX		
14+15	Pyro 2 safed		

FLIGHT DIR MISSION LOG	DAY	REV	PG
			202
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	P-68 we have 068 Venting Ox —		
<u>-16:44</u>	PGNS & AGS both GO		
	VH 5515.2 — <u>P-12</u>		
	P-12 is GO —		
<u>-18:13</u>	AGS / PGNS		
<u>-18:43</u>	STAY T2 —		
	AGS ALIGN —		
	TRANQUILITY BASE —		
102+54	Recommended exit P-12 Auto targeting was taking them down into a football sized CRATER with big boulders		
	Pitched up about 4 1/2 & Yawed About 130°		
102+58	M2FN Relay —		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				203
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	RC2 status —			
	A 77 } 8.8°/Low			
	B 72 }			
	171# Des H2O }			
	43.8# O2 }			
	Ascent OK			
	Consumed 329 AH			
103+01	Asc Batts OFF <u>LINE</u>			
	The guys that said			
	where we would			
	land were RIGHT			
	we were about 65"			
	past Low Level —			
	About 20" to the			
	Abort/Land point —			
	3% F01, 1% F02 — 42%			
103+02	Started P-57			
	Reformat Gravity AT-1			
	* we want AN Emod			
	dowp —			
	NO4 indicates 4.5°			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				204
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	MET 90203447			
	has apparently gone static →			
	Computer apparently Cycled thru to N65			
	MET Row 2 P-11			
	Recall P-57 & Row thru Gravity Align			
	{ 9020440 }			
*	{ 9020449 }			
	{ 9999449 Cycled C/B }			
Align#	P-57 — went well			
<u>103+14</u>	* Vent Fu & Ox to 40 or below —			
	Both simultaneously.			
103+15	Vent Fuel — it is INCREASING rapidly			
	<u>30 Fu & Ox Obs'd read</u>			
	Fuel Vent swg Holding open — crew is			
	20 & 22 Inlets <u>ON</u>			

FLIGHT DIR MISSION LOG	DAY	REV	PG 205
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
103+22	Fuel Hx Heat Exchanger to Ball Valve freeze may have occurred - Close Fuel & Ox vents Burst pressure in that line is ~ 2000 psi - Hydraulic press, expect that may spring a leak in Fuel Hx Heat exchanger - SPAW working the problem -		
103+26	Get list of all components near the Hx -		
103+28	Now in P-57 that has 2 stars -		
103+ 29	Hacking E.T to count up to 60 @ T3 T10		
	Control - satisfied that Fuel Inlet Press will not be a problem will remove it after		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				206
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	T3 - Telecom advises that there is no equip there that will be a problem.			
	All FDO DATA			
	.799 Lat N			
	23461 Long E			
	About 4 miles Long			
	103+42 AGS & PONS Gravity			
	Agrees to .01 deg.			
	P-57 2 AOT hooks			
	Complete -			
	Star < difference			
	is 00009 - Gravity			
	Align with Rigel			
	Should be Good.			
	* N 89 - Poll CB Poll			
	for MET - Try &			
	Fix Later -			
	Reject RLS data			
	from P57 -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				207
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
103+54	PROGRAM ALARM 1106 Crew placed up data switch — during EMOD & it may have caused 1106 —			
Note	About 103+50 The Fuel Inlet Pressure started to decay rapidly — freeze — either: Hx ¹ broke Loose, or line broke — Press decayed rapidly from > 900 (OSM) to ~ 50 psi, then tapered off * updated — CSI — — T ₃ Pads —			
103+57	POO & DATA — P-57 CSU SV RLS update			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				208
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	LM DAP			
	LMWT 10806			
	CSM 36651			
104+06	P-37 Gravity < was Great			
Touch down	102+45+45 GET			
	55+09 12+41			
104+51	P-37 STAR < diff 12 GO-			
	AOT Gravity & Final Torquing -			
104+21	STAY FOR 13 -			
	SURFACE block <u>data</u>			
	RTCC → down to 2 machines			
	6 33.5			
	5 36.5 *			
	difference on ASa			
	Batts -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
104+47	Stay with present Refsmatt			
	2.2 NM Circle - for Sextant FOV			
104+50	Waste Water dump to 10% in back side - No Refsmatt change, keep looking for CM			
	all cryo heaters to Auto position			
	Get jets selected - DAP-			
	Start Start Batt B charge - good for 7 hours			
105+01	Need to update CMS State Vector - Will be ready shortly			
105+07	Need AGA rearg			
105+08	HGA - OK			
105+10	-Poo + accept - uplinking			
105+11	Batt A - on Batt Relay Bus			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				210
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	EVA preps Starting @ 104+45			
	about 106			
104+54	Need 2 LM PRD'S with 45			
	min Separation			
	EMOD is go			
105+01	EMOD IS GO			
105+07	CDR - 11014 , LMP 09017			
	PRD'S →			
	Need to Verify - LMP 09017			
	per do's			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
105+12	- Batts O.K. - through with uplink			
105+17	Evap out temp - 32.2 may need manual mixing for in ECS 17			
105+19	A-11 request R09 pn 382 for manual mixing valve			
	Don't expect problem with evap - just following Rads			
105+30	Inlet valve not sending hot glycol to evap - has gone to 38° in past usually stays at 43-44			
	Measurement based on <u>evap out</u> temp			
105+32	FAO recommends letting Auto optics track LM			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				212
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Green Team on #5			
105+41	open problem			
	CSM evaporator Temp			
	low - mixing valve			
	problem - may be			
	in auto control part			
	of mixing valve.			
105+47	when do they plan			
	to start EVA prep			
	A-11 Start prep in			
	1/2 hr.			
	B & C prep usage			
	due to locked p-22			
	Start of			
	106+15 est. 1 prep for EVA			
	Ecom thinks we may con-			
	pick a point (Temp)			
	with manual control &			
	get around modulating			
	the valve.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				2138
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
Quest for 10611 AOS	1) did he go to manual messy			
	PRD			
	need second PRD			
	reading pre eva pup			
	Fuel has T4 prob			
	& leaks standing by.			
AOS	50 deg evap out			
106+11	<u>Strang</u> <u>beginning</u> <u>EVA</u> <u>pup</u>			
	waste water drops to			
	1070			
	do we want another			
	P-22? Affirmative			
	ECS System problem			
	went away - Auto			
	Control Cycled			
	out of auto to manual			
	to auto			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				214
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
106+16	Slew position of S band Antenna - Track mode switch in Slew - Capcom says they reported it			
106+22	Second set of PRD reading CDR = 11014 LMP = 09017.75			
	Surgeon - all on site			
	Columbia Lug at 11 O'clock big old crater told him to look west of irregular shaped crater			
106+39	{ Eyes glued to surface } { Could not see } No joy			
106+40	No no change prior to 113 hrs - no problem with not following			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				215
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
4	must get back with crew in this - TELCOM			
106+43	MIKE 6.7			
	7.2 MIKE to			
106+46	lost him - on omni D Should have been on best			
106+48	Sues Checklist? p-27 Top			
	4			
106+50	And reset no gain on high gain on omni D Giving coord of east of Lm position.			
	Unable to hear relay so he can hear what's going on			
106+57	Yaw 180 Pitch 0			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				216
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Colombia - Close to			
	Cats paw			
	Elem - mix valve appears			
	to be working okay.			
107+08	Sent Columb - coast track			
	information			
107+11	updating refsmatB			
107+17	brief on comm.			
	Half a relay mode			
107+31	Trajectory middle of			
	Surface 028.			
	Looks like we are			
	40 to 50 minutes behind.			
107+54	Event Timer			
107+55	good data from CPR			
	on PLSS - Surgeon.			
	Bad report - think			
	he was looking at CIL			
	data			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				217
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
108+01	elect Checkout Fm			
108+02	BDS Lm Fm data high hit rate - TELcom good data			
	Click on Boss Conf.			
	TV sync looks good - network.			
	has			
108+07	Fm 1 data, Sugem has data			
108+10	P-52 opt #3 Stan 43 & 44 00001 to 00057 +			
108+13	Neil com check ok Buzz " " "			
	Neil			
108+14	ladder dark shadow			
108+17	Columbia reading range			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				218
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
108+19	open TV circuit breaker roger.			
108+20	Neil Transmission breaking up Buzz loud & clear Neil " " "			
108+22	Go for Cabin Cabin Repairs			
108+31	Buzz helmet on - comm good.			
	Both fms normal - emu			
108+40	Buzz Cleared up			
	Both pumps running - EMD			
Columbia	high P 0 gain. Y 200			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				219
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
108+50	press inteq ok - ngs			
	good - ENU			
108+52	Neil L & C			
	Buz L & C			
	Buz watch at			
	108 + 56			
109+02	Muping valves working			
	OK in CSM			
	Takes a long time			
	to open hatch =			
109+06	Suit Temp of 28 deg			
	Need to get a Sublimator			
109+09	Suits on 3.5 min			
	to start			
	Ocent etc			
	& others okay			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				220
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
109+19+18	CDR in pouch			
	21-02-55-14 first step			
21+	02+56+20 first step W/ LM			
	fine & powdery adheres in fine clay powder Charcoal - 1/8" Can see foot prints			
109+34	Contingency Sample			
109+37	Contingency Sample in pocket			
	SRC Transfer okay in evaluation.			
	Buz 21-03+15+40			
109+43	both PLSS ok			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				221
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
109451	Changing lenses on TV			
	Camera Temp cold			
	Buzz on Int.			
	FLAG planted			
	43 + 14			
	21 + 03 + 41 + 54			
	Tumble planting			
	BMT			
	21 03 48 35			
	President Speaks			
	BMT			
	21 + 03 + 49 + 57			
	Neil Speaks			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				222
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
110+36	SRC being sealed			
110+37	no marks in LM Coord E .3 7.6			
110+42	reminded buzz of closeup camera. 11 Roger Thanks.			
110+55	PSE deployed manual.			
2+15	gone Buzz his warning			
	2+29+12 Buzz up ladder			
111+39	Terminated EVA - Nail in hatch			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				2238
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
112+05	uplink to CSM			
	has not realigned platform.			
112+20	LM status.			
	using film			
112+34	Can't see him from CSM			
112+45	Sending up T 8, 9, 10, 11, 12			
	readup			
	Columbia Crew Status			
	100.1 no medication			
	WT of RCV 12 oz			
	w/o bag @DR 12.5 oz			
112+51	Control Config problem			
	SUR			
	1 circuit breaker stab/			
	circuit ACTA panel			
	Now 2 - open			
	Begin from LM			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				224
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Buzz Eng arm circuit breaker and seems to be broken off in open position leave open			
	CDR			
	11014 PRD			
	LMP 09018			
113+08	CSM - 121% } Wake up - LM - 122 } Back on Nominal			
113+09	Network + MPAD - Ranging test during eat period -			
	HGA P +10 Yaw 250			
	Reacq - mode			
113+17	Sleep data to CSM - Nominal on wake up - go to Sleep Comm - LiOH Charge, RCS quad config - Oz purge @ 113:30, Crys all Auto - same as now -			

T8-

FLIGHT DIR MISSION LOG	DAY	REV	PG
			225
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
113+18	Trang base - finishing up eat period getting ready to depress-		
	Surface 45 - put C+W enable to Ranging		
113+27	Changing LM LiOH Canister		
	- Get CSM SV into LM before sleep		
	Load @ Sig Site now		
113+33	Have completed LM LiOH Change		
	LM Consumables - usage rates same as before - re press O ₂ slightly lower than expected		
	RLS - best we know - $299^{\circ} 23.461^{\circ}$		
113+48	- Uplinking CSM SV to LM		
	T ₁₃ 124+22+02 to LM		
113+48	Est 15 min to Depress -		
113+50	Uplink Complete - back to block		

FLIGHT DIR MISSION LOG	DAY	REV	PG 226
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
114+04	CSM AOS - Auto Re acq - OK		
114+05	LM pressurizing Suit OK -		
114+07	Columbia Cleared for Sleep -		
114+07	PGA check OK - LM		
114+11	FWD to 2 psi overhead + forward then - coming down nicely		
	CSM Voice uplink OFF		
	CSM Deadband 50/100 10° - OK		
114+13+	- object out of LM?		
114+14+00	- PCSS #1		
114+14+35	" #2		
114+17	Cabin repressing - - OK -		
114+18	- Repress Complete -		
114+21+30	- told EECOM to re-enable CSM uplink		
114+22+08	- Uplink OK		
114+25	Mission timer procedure available		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				227
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
114+25	TV turned off-			
114+27	CSM told about DSKY & D/B			
114+28	Take down uplink to CSM - uplink down -			
114+30	LM Mission timer now OK - Time back up @ 114+31			
	Yawed left - according to shadow - - both balls say this also -			
	Have solar wind experiment & cone sampling			
	1/2 NM west of football size crater			
114+54	CSM pilot asleep - DSKY still flashing - will leave alone			
114+55	- Signed OFF with LM - Flight plan items left on lunar surface and also the "good News medal"			
	LM Temps - RR - has been from 80 to 400 - OK			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				228
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
117+40	CSM & LM OPS NORMAL - - NEIL SEEMS TO BE ASLEEP - BUT HAS BEEN RESTLESS PRI FLOW CONTROL OPS NORMAL LM CONSUMABLES ABOVE NOMINAL			
118+08	CSM OPS Normal Hand over required - may drop lock, activating C&W System - Handed over without losing lock -			
118+58	- Mixing Valve working OK			
119+00	FIDO & DATA SELECTS WANT TO TRACK CSM WITH RR @ 122+10 - about 10 min before RR Self test - looks like it can be done but they are working out a story -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				229
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Block #6			
	FIDO			
	Phone Change - Rnd 3 Radar - test -			
	122:30.			
	Guid officers:			
	Not rds color on -			
	+ printers not diving -			
	Control Surf. 6.1 - Delete rnd 3 color -			
	(1) Drive PMS in Topometer for			
	Ascent.			
	(2) Surf 59, 60. (Vent)			
	(3) P22 work at P22 (122:30 -			
	ASC going down - Auto Circuitry - Stop -			
	if go manual, hit stop at $V_{gx} = 0$ -			
	Rcom - Update Voice Surf 6.1			
	VHF T16-17			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				230
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Eggs -			
	Road up to 72° -			
	All mapping			
	HOA resig			
	Cryling - Geology questions -			
	Looking up CSM before end of run -			
	P22 130' - state vents -			
	LM plots 122			
	P22 road order - out of plane			
	Surf 59, 60 - Vent			
	Surf 61 - Delete 1st order			
	Not House paper meter			
	Asc 2 gpm			
	Update Voice Backup -			
	Geology questions -			
	Eggs			
	Or story -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				232
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	GNC -			
	50 th below A-10 @ comparable			
	functional point -			
120/59	CSM - Upkeep -			
	MCC / POO / Accept			
	State Vectors -			
	Keep you a little busy - do P52 opt.			
	3.			
	Will give you 130' data -			
	Will have L7 do P22 on you -			
	Guid - State Vectors in -			
	FAD - may take a few minutes for grid			
	squares for 130'.			
	T ₁ - T ₂ Times for P22			
	130 prime is same as for POE -			
	for CSM plane data -			
	will run P22 against CSM -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
		237a		
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	A 81% , 75% B			
	Best estimate (Current) PNGS ,			
	0.799° N			
	23.4602E			
	Confirmed by MSEP (reports), geological			
	AGS-			
12/40/30	- Upheaval -			
	Sound like they were up a little			
	bit.			
	P22 -			
	checklist changes -			
	800-Data -			
	P57 op Rm 3 -			
	122+15 P22			
	Surf 59 - One lost PPS vent -			
	Landsin - CSM Vector -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				2338
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	All necessary updates have been made -			
	GUID, Control, Relcom, FAO -			
	CUTL - Indications manual for CS -			
121/57	AOS CSM			
	① CR40 on H ₂ for 1 min / per tank -			
	② P52 Beginning angles -			
	MCC Cuyo pass -			
	A/Roger -			
122/00	MCC / P52 angles -			
	M1 - 25.42 0000			
	CSM +.165 +.186 -.039			
124/01	Errr Reset - LGC self Test 60			
	→ 121+15 GET Pygme -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
		234		
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Cryo Str in progress			
122/03/40-	<u>P57-</u>			
	Recycle on 06/04.			
	Gravity even good -			
122/12	<u>CS1</u> X position			
122/13	Therm End 3 rotation -			
122/16	Warmup on rotation -			
	Cont on -			
122/16	<u>G</u> - Through W marks -			
	A - N93 .7 all spec -			
	122+22+57			
	122+29+35 -			
122/17/40	P22			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				235
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Hosler -			
	Affair/Breed -			
	Negative mV83 -			
122/26	Terminate P22 both ships -			
122/28	- PRN ranging -			
	- POS Kfactor -			
122/30	1757 need to do 852 unless you want to -			
	R - Kfactor in properly -			
	101 - 37V on C		37	BATBUC A
	37 A pzw		36	E
	37V B "			
	10 second channel - 70 channel -			

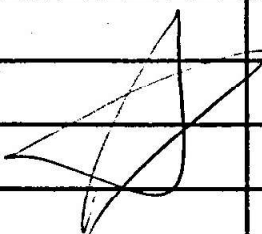
FLIGHT DIR MISSION LOG		DAY	REV	PG
				236
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	5 hour good sleep on CML -			
122/36	4 Thruster pair red - CB's out - V775 on surf 52 -			
	Proceed - reset - press on with			
	hot fire -			
	Reset -			
122/39	fetchious activity - earlier			
	caused red indications on thruster pairs -			
	CSM 5Vectors going up -			
	Part 1 -			
	Reteched in PMS - GO -			
	Part 2 See RCS coils -			
	Al Capella almost sighting -			
	Al Capella 8th of 1 -			
	Same Time - Press into Capella -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				237
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
122/43	MCC - RCS check looked good			
	IR 16 HBD - drifts - OK			
	Drifts good on MERU's - ITN good -			
	Detent 4 not usable anyway w/ yaw			
	F(100)			
	Reide by LOS + 20 min on plane			
★	122 screwed up on time tag -			
	Not good data -			
		2	4	X
	DES Cal	.03	.05	.07
		DES go -		
124/54	ASERT POD			
	CSL POD -			
122/55	Cntrl DES PHOS align good			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				238
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
123/	Columbin kachin —			
	TIG River —			
	Finishing uploads —			
123/02	His Capt'n VHS —			
	Columbin Cnsrkl Update —			
123/09	LOS on Columbin —			
123/11	Unsolicited comments on geology.			
	Loaded in a rel. smooth water field —			
	elargated			
	A/ long report on features —			
	heil —			
123/15	Cnsrkl Update			
	FRN/ Detent 6			
	Civins, Regal 55°, 43° sun angle —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				239
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	this speed is down -			
123/20	Circumventing fine on ASC Eng then CS -			
	Detent 6 Venus right at finger -			
123/22	<u>Control</u> - Rhant during ASC -			
	ChList iten Surf 57			
	shf 335 vee, 270			
	for Ascent			
	Kip as go -			
123/26	MCC CL Surf 57 soft 335 -			
	Steerable for for 30-60			
	aft down from then on -			

FLIGHT DIR MISSION LOG		DAY	REV	PG. 241
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
123/30	Moving into T-45 main c/d.			
123/47	Torquing Angles - beautiful			
	N9B .089			
	.067			
	.041			
123/56	Because of power loads - BATS, 6m			
T-16-25	173 off -			
	BATS - 546 lock good -			
	Hoslow analysis -			
123/59	Columbin lift off ok, ride -			
	Used 154 roll -			
	Hoslow analysis good w BATS -			
	Preyde -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				242
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	TIG - 19min -			
	Rudy Radar mode switch to C6C			
	reminder - it's that way in the C/C -			
	Clear for Takeoff ✓			
	Tank #2 way as there's fuel -			
	3042	2994		
	3070	3054 now		
	Go on DBS initial go -			
✓	Vented DPS -			
	DSC feed in -			
	Good at TIG - 10min -			
	Auto Thrust Mode -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				2478
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	A in TOR in VHF -			
	Ascent BOTS - 1500000000 -			
124/13	Single good 1000			
	PNPCS - Good at 1min -			
	Manual 8000000000 -			
	Good			
	Tank 2 good			
	Good at 2min -			
	Good 3			
	Good 4			
	5			
	6			
	GO -			
	Trim Residuals -			
124/30	Trim good -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				244
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	124/30/48 - 47.2 9.5			
	Reset -			
	Proceed to RS2 as per nominal -			
	Left Frangility Base -			
	Left Apollo 11 olive branch -			
	45.7x9 Track -			
	PNS			
	AGS -			
	CSI Pni nominal -			
	77% A 71% B -			
	ECCOM - Bocheng du Virel -			
	CSM may be weak -			
	RECOM - Upstair switch off -			
124/39	RS2 CM	RS2 Columbia -		
	5.3			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				246
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	0000 STANLEY Diff.			
	-0006			
	.06			
	.13			
124/54	Lohan -			
	CSM VS 2 1550 - No NBD updates -			
124/57	if have P162			
	Time - 4-16 ✓			
124/59	CSM soln for LM			
	Your 14 - 1.0			
	HXR ✓			
125/00	HXR w LM -			
	AGS agree closely in printing			
	CSM cannot read Eagle -			
	CSM L / LM F -			
	VHF ranging not working -			
125/02	Take SXT Marks - don't re-integrate			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				248
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Briefing -			
	1 Mount Forward.			
	MSEN relay -			
	Burn Report			
	Status -			
	All GO -			
	Both AGLD CB's - ✓			
	No -			
	That was just a circle			
	CB's are OK -			
125/53	CSM -			
	GNC - Good on propellants -			
	ECOM - Good on LBR			
	CSM / CSI - on time -			
	no phase change -			
125/58	Eagle -			
	laser going ? -			
	Burn Report -			
	CSI on time 125 19 34.70			
	51.5 - .2			
	+ .7			
	- .1			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				249
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	AGS +.24			
	+.9			
	+.3			
	No plane change -			
	CSM had 2.3, 2.9 LOS for plane			
	change & didn't burn -			
	HGA for Columbia -			
126/01 ETE	Burn Verify switched L101H connectors Energetic indications on PPC2 switched - still energetic Then settled out -			
	OM Low has no input - we're already			
	HTE asking him.			
126/05	Site problem at 7100 for CSM - Columbia still cannot read him -			
	FAD Don't know whether CASOR came from -			
126/08	Go To Reag, should square out HGA			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				250
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
126/09	Columbia -			
	Hto Angeles -			
126/10	Company Solutions -			
	Hto B.1			
	PPCO ₂ - 114			
	Pulled CB - on PPCO ₂ -			
	A1 - Water Separators not working too well			
	lot of water through suit -			
	showing good up speed -			
	Burn Comparison -			
	19.			
	LCC's on? -			
	level vacuum can see level?			
	CP14 looked good -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				251
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	MCC Accum question -			
	CNR - Good - on RCS 140/055 -			
	Comm problem was at MAD -			
	Water right inline between red/green -			
	TPI - 3 minutes late sh 15.2			
	Vx 23 -12			
126/25	Water Stray - Sep good -			
	A - Not too much trouble -			
	Trunkle w only mesuit -			
126/24	CSM/H&A NBW HBR			
	GUID - CONTROL - TBLCS -			
	127/02/03			
	126/57/FID			
	rebound -			
	.6 fps out of plane -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				252
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	CSM Solu for TPE			
<u>126/33</u>	127/02/34.50 TPE Tig Time			
	Connectors are OK -			
	Stay on cabin -			
	FIRE			
	127/03 TIG 14.55H -			
	V ₄ 22.8			
	V ₄ 1.5			
	V ₂ -11.5			
	Did they ever go to Egress on secondary connectors?			
<u>126/51</u>	Stay in Cabin Mode -			
	No real concern over that CO ₂ -			
	M Roger -			
	Final 127/03/31 TIG TPE Time -			
	Rps was X .117 75 cm/sec ²			
	No update			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				253
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
126/55	log in , amperes at your convenience			
126/57 -	all solus logged -			
	LM 127 0.3 30.02			
	soln. +22.7			
	+ 1.7			
	- 10.6			
	LM OUT OF PLANE - IN ABS -			
	TPI burning -			
	all good at SPS -			
	.6914 $\pm$ 3000' $\pm$.03			
	on track -			
	4 miles down because being off			
	at PDI -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				254
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	SHIFT SUMMARY —			
	① DIRECTOR FOR D - FLOW RATE			
	(SEE CHANGES)			
	② LM - ERRATIC CO ₂			
	— POSSIBLE CHANNING OF			
	CO ₂ CANNISTERS DUE TO WATER			
	— DID HE GO TO EGAGGS WHILE			
	ON SE C CANNISTER?			
	GMLW - NO NEED TO BRING			
	CANNISTER BACK HE			
	DOES NOT THINK —			
	— PUDDY IS GETTING LIST OF QUESTIONS			
	TO ASK & UNDERSTAND MORE			
	ABOUT THAT —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				255
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
127/52	A05 <u>R1 61102 ✓</u> Post Pch in checklist - Overbalance - B-Directive <u>01111</u>			
127/52	A1 <u>OK you got me -</u> <u>STD keeping -</u> 58 % RCS - 45% Getting ready today - Caged the platform in LM - 1 CPdn - Switched to other -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				266
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
-1700-✓	Shift change items			
	1. Close CO2 PP Xducer & perform some CO2 canister switching			
-OK-✓	2. Cam Pld on DIR Dz For xfer			
	3. Cabin closeout open items -			
✓	4. Final Sep MVR P30/41 P47			
	5. Config Items to avoid master alarms at TEI - Cryo str, etc.			
✓	6. Pickup Questions post TEI			
✓	7. Pint Cntr - effect on HGA Steerable for Final Sep / PGNCS Test -			
	① RCS A & B readout *			
	② CO2 PP C/B - close select sec CART			
	③ Steerable ANT update			
✓	④ 133:05 - Dump H2O to 10%			
	⑤ 133:05 Cryo str 134+00			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				256 257
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	5785 #LMWT.			
120/04	B3-C4 disabled -			
	Bumping up when ✓			
120/05	O2 flow adjust ✓			
	New H1 weight ✓			
	64R1			
120/11	61102 in R.			
	01111 R2 use B-Dwell			
	5785 th			
120/15	Leak Check -			
	Press Equal Valve -			
120/20	CSM Hatch open? No - wait a minute -			
120/20/41	CSM - Going fine - B with you in a second -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				258
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
120/30	Cntrl like on AG/70 PNGS align -			
	,6914 ± .03 3000'			
	23.461			
	Sept 170K 131.52 :00			
	Zero ABS errors @ Jett att before ✓			
	Assault			
	p 165 y 68			
120/43	GNC - Jett att.			
	Thresh - Direct O ₂ Valve -			
	.482 [±] /HR indicated -			
120/50	Guid Cntrl Switch TO PNGS then AGS -			
	TO zero ABS att hold -			
	MCC - Guid Cntrl Switch Cycle -			
	FIR 62.6 x 56.4			

FLIGHT DIR MISSION LOG	DAY	REV	PG
			260
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
<u>129+15</u>	White Team on Shift -		
	Rev 27		
	173 Amp Power up - we have		
	Single O ₂ & H ₂ Cryo Tank		
	Capability all the way		
129+24	Asked SPAN to give me		
	A rundown on all problems		
	related to TEI Burn,		
	particularly the SPS/RCS		
	type problems -		
	Verify		
	RCS Quad B		
	Pitch Gimbal motor		
	Oob'd Pc -		
	SPS GN2 B-Low		
	Quad A is above 30 SWO		
	point by +38#, Quad D		
	is 60#, C +55, B +44		
	Above Switchover point.		
	CSM orbit was <u>57</u> x <u>62</u>		
	at CDIT - pretty close		
	works like that science		
	didn't work out -		

FLIGHT DIR MISSION LOG		DAY	REV	PG
			21	261
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
129:50	LM AOS HBR—			
	Notes: From now on All			
	of them.			
	RCS A—			
	RCS Accept— S.V. head			
	to CSU — uplink			
	complete V66 CSU			
	SU to LM slots—			
	Final recommendation			
	on early LM dett within			
	10 mins —			
	130+30 / dettison will			
	be moved up & crew			
	will use.			
	— write up what happened			
	here — & decision			
	process*			
	— see other side —			
130+04	Direct Op Closed			
130+05	Go Logic ARM			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				262
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
<u>130+06</u>	GO FOR Tyro ARM			
	Will give crew a maneuver			
	About 5 min for			
	<u>335°</u>			
	- Enable B3 & C4 -			
	- 00003			
	- 00003			
	00000			
	EWS -			
<u>130:10</u>	Departing from			
	the CSU -			
	Advised CSU not to			
	station keep -			
<u>130+30</u>	Now we ARE coming			
	up with a sep burn			
	at to make sure			
	that we are ahead			
	of the LM -			
130+21	- Unloading the load			
	for MMR to CSU			
	the computer is his -			
130+25	Now in P-41			
	130:30:00 AVX-2fps			
	Retrograde			
	RO, P230, Y0 -			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				263-
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Crew going to			
	R 1.1, P 52.6 & Y 13.8,			
	with H. GAIN Angles			
	P-79, Y+10.			
130+44	Now discussing the			
	TEI Opportunities -			
	in order to GO at			
	29 we would have			
	$\approx 1/2$ of Rev 28			
	$\approx 3/4$ of Rev 29 then			
	update at end of 29;			
	will be 20 miles ahead			
	& 1 mile below the			
	LM at TEI.			
	LM PGDCS still			
	operating 1 1/4 hours			
	after cooling			
	termination			
	f			
	Control - found out that			
	the CSM RR X powder			
	was on thru evaluation			
	of the LM RR DATA -			
131+00	LOS			

FLIGHT DIR MISSION LOG		DAY	REV	PG
			29	264
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
131+48	CSM AOS - HBR			
	Waste H ₂ O Dump			
	Complete -			
	A-11 Voice check GO			
LM *	Prediction on PDA -			
	Temps - up $\approx 5^\circ$ since			
	last pass -			
	(Grave struggle & problem)			
	looks like the crew			
	is eating -			
132+16	Reading the Crew News			
	Read up prelim			
	TEI 30 pad -			
	All GO at Hrs 133+30			
	will			
	TEI 30			
	135+23+41			
	3201.1 ΔV			
* 2 jet 16"	681.8 X			
village -	-265.0 Z			
36,691 wt	ΔVT 3283.6			
	ATB 2:28			
	ΔV_c 3262.8			
	GET OSC 195:04:52			

FLIGHT DIR MISSION LOG		DAY	REV	PG
			30	268
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
133+50	AOS CSM Rev prior to TEI —			
	Post burn } S.V.			
	Pre burn } S.V.			
	Return AV update (TEI Target)			
	Fuel Cell purge complete			
133+55	29 mi. Ahead & 2 mi. below the LM @ TEI			
133+56	Advised crew that what S.V. we would get 1W CSM & LM slots Also deleted V66 At 134:30			
134+00	Computer is his — Bank A start, Dual Bank —			
134+02	Uplinked TEI 302 TEI 31 <u>3 Pad</u>			
	36+69			
	CP's Recycled			

FLIGHT DIR MISSION LOG	DAY	REV	PG 274
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
<u>140:00</u>	Status - GNC - OK		
	PTC still good, Temps OK		
	EECOM - Ops Normal		
	Surgeon - declassified crew asleep @ 139 hrs		
	LOBBOT LBR DATA		
141+00	Status - GNC - OK - Same ARC		
	on PTC essentially -		
	EECOM - all LBR now 30' site		
	Commanding from 85' site		
	Surgeon - No data		
141+49	ESAP NEEDS COMMAND CAPABILITY		
	Will move CRO over to cover it -		
142+00	GNC - OPS NORMAL		
	EECOM - OPS NORMAL		
142+26	HBR DATA - OPS NORMAL		
	CREW OK - CDR may be stirring some		
	But is still asleep -		
142+51	LOST DATA - GROUND PROBLEM?		
	CP Down - OPERATOR ERROR		
	cannot get data back for 10 min -		
	until s/c rolls back around		
142+59	Data Back		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				400,000 275
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
143+00	- LBR Status OPS Normal - EECOM + GNC Crew still asleep -			
	5@ 150°30			
	7fps @ 172:00			
	No MCC Vacuum perigee 66.7 NM			
	Fido Recommends waiting for MCC			
	+ RETRO			
143+07	MSI Exit - 148°07:23 GET			
143+07	Do Dump @ 150 Hours			
144+00	Status check - Systems Ops Normal Crew Asleep - PTC OK			
144+08	MCC5 27° 30 YEI			
	MCC6 15° 30 YEI			
	WX FORECAST - GOOD FOR LANDING			
	Two TROPICAL STORMS - No problem			
145+00	Status - GNC - RCS about same - 1 to 2% - PTC within 10° EECOM - Balancing Cryo O ₂ 63% HBR, Ops Normal Tracking still going well Crew still sleeping soundly			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				276
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
145+06	ESAP - temps still rising - leveled experim ^D			
145+20	Crew team on #6			
	Crew sleeping - all			
	Systems normal			
	FIDO - tracking data good			
	Solid solution			
	MCC 5 5 fps			
	6 7 fps			
	SPS min impulse ?			
	Guidance - nominal			
	B&C			
	RCS 14 # down			
	from flight plan			
	coning angle 10 deg			
	no problems now			
	high currents at TEI			
	probably because of			
	mistake - pitch angle			
	B&C looking at TEI data			
	from inlet pressure			
	of gimbal trim			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				2757
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Ecom - Systems good			
	water dump & f.c.			
	purge when they wake			
	bal sys in or at			
	this time			
	Sergeon - Crew sleeping			
	soundly.			
	FHO - TV at 155+30			
	Network - set up for			
	TV			
	Experiments			
	1) data from PSE now			
PSE	2) Still having Temp			
	problem			
	LR ³ 1) deployed - no joy on			
	laser reflection yet.			
146+18	question crew on			
	1) water in suit loop			
	2) checking problem.			

FLIGHT DIR MISSION LOG	DAY	REV	PG 279
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
148+08	Ops Buys in Trench doing good job. so far - 1 Neil.		
148+22	morning news up Purge complete all Three Charging BAT A Query Dow Jones Industrials		
148+52	Nav & Tgt load going up. his computer - loads in & verified.		
148+43	Nav Jones info		
148+45	locking anomaly Queried the crew other page		
148+50	MCC 5 pad up readback correct		

LIGHT DIR MISSION LOG		DAY	REV	PG 286
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
147+01	Crew apparently returning two mine dumps - affected PTC			
147+30	Decided to do MCC 5 - We are out of corridor and F100 is satisfied we have good solution.			
147+47	A-11 good morning. 8 8 8.5 CDR CMP LMP			
	Sent up flight Plan update & Consumables update A-11 roger			
148+00	loose sensor on LMP Sternal lead A-11 roger			
148+04				
148+07+24	leaving sphere of influence of moon			

FLIGHT DIR MISSION LOG		DAY	REV	PG
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	1. docked in cmc auto			
	2. not sure of contact			
	3. Got two barber poles			
	Soft docked			
	4. Very stable			
	5. went to free cmc			
	6. fired pu 2 bottle			
	7. separation between two veh			
	During retract			
	8. CSN yaw 15 deg elevation			
	9. went to auto & clamped			
	10. 6 or 8 seconds it clamped			
	heard docking latches fire			
	11. All Twelve engaged			
	1. CGS min db att half			
	2. at contact thrust + X			
	3. opened db to max manually			
	4. Slewed to stable &			
	got hard docking.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				280
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
149+00	Query crew on LM Suit loop problem. Question: (1) CDR Suit only (2) After insertion, with helmets off - 20 min after noticing, he called us (3) Water problem prior to P_{CO2} problem. (4) See CO₂ analyzer just went to Sep to Secondary 15 to 20 min water <u>stopped coming out</u> (5) No change in Suit loop configuration - Buzz			
149+24	Buzz EKG Stomachs Tight Data still noisy			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				281
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
149+144	Buzz any change in biased connector - Take off and put back on pitch -90 to get yaw 270 high gain antenna			
150+10	high gain acq			
150+29	Mcc 5 complete			
	Dvc +.2			
150+36	TEI Conclusion C & C .3 to .4 deg B & N angled & actual gimbal position - are due to to throat crossin - clutch currents substitute this			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				282
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
158+43	A-11 PTC attitude call when thruster activity subsides.			
	P -45 after y 270 handover to CDS			
151+01	Steve Bales says Neil flew 1100 ft downrange further than the automatic system. Based on MPAD preliminary data			
151+20	C&C go for rollup on PTC			
151+24	roll high rate on PTC C&C - had roll error & it went the other way			
	A-11 V16N20 on DSKY may be possibility			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				283
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
151+45	B&C V 16 N20 affects PTC			
	V 40 N20 enters @ DV zero Start PTC over			
151+54	lost Comm with S/C he probably didn't copy our Transmission in 1 blind about 5-bar high gain.			
152+30	B&C rates he should have seen cannot be answered.			
152+43	AOS - dropped out in 20 Secs!			
152+46	AOS again. high gain. Still waiting for thruster firings to cease - Holding attitude			

FLIGHT DIR MISSION LOG	DAY	REV	PG
			284
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	EECOM { Need to go to Reacq. for PTC		
	If Pos Roll, $P = +30$, $Y = 270$		
	If Neg Roll, $P = -40$, $Y = 90$		
	Hi-gain vice OMNI B		
	Question for span:		
153:20	How long can we stay in this		
	attitude? Rate $\approx .03^\circ/\text{sec}$		
153:33	Ans: $\sim 2\frac{1}{2}$ hrs		
	Ready to start PTC, Pos direction		
	Started PTC, got rates in all		
	3 axes but only roll thrusters fired		
	(up to $.2^\circ/\text{sec}$ in pitch and yaw)		
153:40	P & Y rates now down to $.01^\circ/\text{sec}$		
153:53	- Strange screeching noise on A/G		
153:56	loop. Goldstone says it was on the		
154:00	downlink. Ascension confirms		
	Sounds like the crew playing the		
	tape recorder.		
154:22	LOS - Should have acquired		
	in HiGain in Reacq. but no Joy		
154:23	Inhibited uplink & got AOS momentarily		
	EECOM says HiGain is not as		
	sensitivity as those on previous S/C, as		
154:41	Got AOS Crew had not gone		
	to Reacq Mode		
	0		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				285
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
154:46	Terminate Batt A Charge			
154:53	DSC now running			
155:24	Stop PTC for TV pass			
155:36	TV received -			
155:56	End of TV			
156:15	O ₂ H ₂ / htr to "Auto"			
156:22	Ready to initiate PTC			
156:30	Started PTC roll			
157:54	FIDO wants a H₂O dump if we have to stop PTC			
	LMP is exercising - His			
	heart rate woke the surgeon up			
	170 bpm			
158:30	Received A SPAN Report on Procedure to prevent back contamination from the waste dump line. A meeting is scheduled at 0900 tomorrow to try to resolve this question.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				246
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
	OMNI to B			
159:51	Crew Rad Report +.03 Millirads			
	since last night - No medication			
	ON Board Readout			
	Entry Rad Read Up			
160:42	Crew Asleep			
160:50	Urine Nozz Temp = 54°			
53	= 63°			
161/19	BLACK TEAM HERE - #7			
	Asked SPAN TO SEE IF ANYONE WAS			
	WRITING UP 2 ITEMS			
	① LM H ₂ O INSUIT, CO ₂ ETC			
	② DOCKING ANOMALY			
161/39	FC/M 48 SWITCH			

FLIGHT DIR MISSION LOG		DAY	REV	PG 287
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	RETRO -			
	① LAST TIME TO MOVE IF, CAN MOVE 40°λ AT NEXT 4-HOURS - NOT MUCH CONTROL			
	② $y_{EE} = -6.56$ 651 $v_{EE} = 36,194$ NO MCC UNT. 1 -6.61, -6.31			
	③ 4.8 fps MCC 5			
	④ ENTRY PAD ON BOARD, WILL PREPARE ONE FOR EI-24 HRS.			
	<u>FIDO -</u>			
	① TRACKING NICE			
	②			
	<u>GUID</u>			
	① UPDATE CLOCK, 8 CENTISECONDS. -.08 SEC			
	<u>GNC -</u>			
	① PTL STABLE -			
	② SHRCS 30 th FROM FLT ALPHAN.			
	③			
	<u>ECCOM -</u>			
	① AUTO ON ALL TANKS O ₂ TANK #2 HT ELEMENT (10F2 FAILED)			

FLIGHT DIR MISSION LOG		DAY	REV	PG 288
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	② WASTE PUMP AT 1704HLS			
	③ 70% HBR ON OMNIS -			
	<u>CAPCOM</u> -			
	<u>SURGEON</u> -			
	① SLEEPING SQUADLY			
	② ALLARLET PAT 160/42 -			
	<u>FAD</u> -			
	① WATER DUMP MAY MESS UP PTC TOMORROW			
	<u>HET</u>			
	<u>RCY</u> -			
	① DWX GOOD - RECON FLIGHT -			
	PTC			
	CHECK POINTS -			
	URINE DUMP LMP -			
	NOTHING -			
	PTC			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				289
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	11.01 N			
	172 W			
	PTC (Pointing South by the way)			
	CHECKPOINT			
	MCC-6 - looks like don't bother			
	MCC-7 now looking like 2.3 fps			
166/16/32	CHECKPOINT			
	Lieber got - I have never heard so			
	much about Comm loops - Some body			
	heard them -			
167/14	Retno	1.3 fps @ MCC-7 now		
167/13	Checkpoint -			
163	FAD	FET Plan Update		
	NOTE - WATER DUMP MAY BUST PTC			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				290
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
168/13	Checkpoint			
169/14	Do Water Pump at GNCall To minimize RTR disturbance -			
	ECS changes for B.C. are designed To shut off the low bleed flow past the bladders and not through the urine line.			
	there is a meeting this morning on that subject - whether to do it still - how & when to do it - 3 switches.			
169/20	CRAP Subject - Agreed upon procedure See Splan report + attached procedure			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				291
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
170+07	Green Team on - last time. #7			
	MCC # 6 no need			
178+39	MCC # 7 no correction			
	Retro says			
170+49	Voice Subcarrier & Surgeon says they are all awake			
170+55	Guid has state vector load standing by.			
171+00	Called Crew			
	A-11 up at least			
	Crew status report ???			
	Sending up paks etc.			
	MCC # 6 cancelled			
	Bat B Charge			
	Waste water dump			
	on our mark to 40 %			
	P-52			
	A+51 C+63			
	B+62 D+59			

FLIGHT DIR MISSION LOG		DAY	REV	PG 292
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	entry pad - roadback correct.			
171+08	his computer - load in & verified.			
	CDR	CMP	LMP	
	8.5	7	8.0	
171+18	water dump to 45% at 171+30			
★	{ told Ecom we better not have to dump in morning after this calculated percent - He better be right -			
Ecom	Bat Charge started O ₂ purge complete			
★	P-52 collapsed deadband when he activates jets			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				293
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
172+08	Ecom wants to set up for h-gain operation			
	P +40			
	Y 270			
	go to reacq mode			
172+17	asked crew to go to reacq mode on h-gain			
173+35	Heading news up			
173+41	EVA visits - location?			
173+52	Crew supposed to let us know A-12 flight planning			
A-11	eat of Spaghetti & meatballs for Al Beam.			
173+59	A-11. Slightly colder in here last nite - warm prior to this ???			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				294
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
174+01	A-11 won't need CM KCS Heaters			
	A-11 platform alignments PTC & careful both get equal star angles angular differences.			
	everything on, he gets consistently .01			
	Visibility thru Telescope very poor - require dark adaptation, advantage in keeping platform up.			
174+24	Cabin Temp appeared to do this on A-10			
	Onset of condensation in cabin ???			
	A-11 - more moisture in tunnel without LM more in Tunnel than any other Tri, no moisture anywhere in SLC.			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				307
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	update to -6.43 YET / was varied ± 0.2 over last 24 hours is now settling down to -6.4 to -6.5, the desired is -6.32 it appears.			
	+86,425 altitude— +195+03+07 400K			
179+15	Went Data— crew did not select OMR, B— they picked up on D— Got Data— crew also CUP also asked to try & put some paste on the sensors to see if we could get some Blowed data (RR)			
	Waiting for Wx report over McDonald observatory — should be available at 179+30 — will try LASER AGAIN —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				304
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	the Real Time system.			
	The Playback buffers			
	ARE AVAILABLE — but			
	there ARE NO Displays.			
	Roll 357 — Earth			
	normal to window #1 —			
180400	Beginning to look bad			
	out in RECOVERY AREA			
	— 10/200, TS. TOPS 50K			
	SCATTERED DAW, 25 by			
	.5-1 mi — 5/7' seas			
	EASE with 18-24K			
	waves —			
	Final word @ 0830 Local			
	sending A/C into			
	AREA — will have			
	word from CTF 130			
	about 0930L —			
	Getting satellite			
	Rx shortly — the			
	would have to move.			
	About 200-300 miles			
	down RANGE —			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				308
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Advised SPAN to get together with Recovery to GO over Landing Constraints - structures etc -			
180+08	Crew gave us train whistle - & sounds of a locomotive accelerating <u>downhill</u>			
	Options to avoid wx at present time. W/OP RANGE About 80 miles - won't help. ~150 miles to			
180+17	Advised CC to find status of crew pre sleep checklist			
	Now Tot 1285 GWS PG 4/67			
	12-1800 nm equally difficult			
	1800-2500 extreme wx Avoidance only EWS cannot allow			
	~ RANGE > 1600			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				308
SITE/ACQ/LDS	FLIGHT EVENTS/HISTORY/BRIEFING			
181+58	- Crew status report			
	See page 306 -			
182+09	LOW Change Complete			
	Note ON Recovery			
	G & N - 1500 NM RANGE			
	4G - 1100 NM RANGE			
	EMS - 1600 NM RANGE			
	Capcom & Retro going over techniques for use of P-65			
	forew try up control & verifying checklist data is adequate -			
	Also Harpold & Jewell are getting together with MIT people & going over P-65			
	Also are reviewing some EMS Profiles on the MPAD <u>Simulators</u> .			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				309
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
184+26	Retro Advises the			
	S/m will skip out, the			
	hp@ Sep will be 59.2			
	- however I understood			
	the same prediction			
	was made on A-10			
	It reentered.			
185+30	Reviewed Checklists -			
	no further updates -			
185+50	Went over entry events			
	and site coverage -			
	see prev page -			
	Charlie Duke is			
	flying the Entry			
	Profile on the Hybrid			
186+35	MCCN through out the			
	shift was come from			
	.6 fps to .3 fps -			
	The landing dispersion			
	Ellipse will not change			
	significantly due to			
	the P-65 up control			
	Cross Rng $\pm 4.19 \text{ m}$			
	Up/Dn Rng $\pm 4.61 \text{ m}$			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				310
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
	Did a bit of Research if we had gotten weather report 24 hours earlier we could have performed a MAC of about 35-40 fps — by the time we got wx report it would have cost ≈ 200 fps.			
	SPAN sez that they have reviewed D-65 program notes & found no discrep- ancies that should be passed on to crew —			
	Ken Mathusly is still working in the Hybrid for Entry runs with Harpold —			
188+00	Runs looked good — Harpold is writing up his & Ken's comments on the runs —			
	They now have a good wx picture taken @ 0100 z			

FLIGHT DIR MISSION LOG	DAY	REV	PG
KRANZ	7/24/69	178+30-188:30	34
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
	Shift Summary		
	1. PTC Initiated & stable		
	2. M.C.E. will probably not be performed — it is 3.14 3.14 ps. / Not performed		
	3. Weather at 1285 Target line turned bad — Selected 1500 RANGE line — This will require P-65 up control, the landing dispersions will not change significantly, weather is 20, H ₁₀ , 080/18 10mi visibility 6' waves. Recovery ships will be on station. Cliff & Chris were advised — We reviewed P-65 with MIT & SPAN, also C. Duke & Mattingly made some runs in the hybrid simulator using Pad data — looks OK.		
	4. Only open item is to get final storage position of the		

FLIGHT DIR MISSION LOG	DAY	REV	PG
			313
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
188+30	- Start of unarmored shift		
	Brought up the DSC -		
	we now have 2 machines		
	getting crew sleep to		
	190 GET -		
	Retro - Up control squared away		
	Fido - No MCC ₇		
	Grado - 3 loads - Platform O.K.		
	GNC - CM RCS - > 4.5 3.9 limit		
	Ecom - O ₂ flow changes - E-6-1		
	F.S. - Sensors OK except resp		
189+28	- Crew called - asked about MCC ₇		
	Need to confirm 2 Evap valves open		
	at proper time - Disregard - Ecom		
190+20	Told A-11 about replinks @ 190+40		
190+00	FET Wx 6' seas 080/18 - 200/10		
190+32	- 5.5, 7, 5.5 - Crew Status		
	Report = Sleep - CDR, CMP, LMP		
	Consumables status to Crew -		

FLIGHT DIR MISSION LOG	DAY	REV	PG
			314
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING		
190+41	Hornet 11Z Wx 07 coverage - 03/15		
	080/20K 080°/20K 3'-6' seas		
	Showers		
190+45	-uplinking SV, Refsmatt, ^{Entry} Tgt load		
190+48	Visor assemblies - under Rt Hand		
	Couch - A-11		
	Wx to crew		
190+50	Uplink completed -		
	Hornet 12Z Wx - 15 ①/①10 3'-6' seas'		
	060/16K No Shower activities		
191+27	No VHF @ 29K		
191+44	- PTC - Stopped		
191+50	- Event times read up - page 6-1 in		
	check list, Entry Pad		
	New backup "constant g" procedure		
192+06	No VHF @ 25K		
192+07	P-52 begun - Option 1 - Longwing now		

FLIGHT DIR MISSION LOG		DAY	REV	PG
				315
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
192+10	Hornet 13Z 150/0 10 060/18K 3-6' Seas			
192+21	P-52 - entered again - probably to use 3 RD star - apparently OK!			
192+37	- MIT Confirms our PAD -			
192+45	1400 Z obs 150/0 10 070/16K 3-6 seas 5/10 total sky cover			
192+51	No VHF @ 20K			
193+06	Logic Sequence Ch OK			
193+07	VHF Simplex A - in T/R mode @ 17500 NM			
193+08	SCS att hold - for MCC-H evaluation Mercury released early - why?? VHF left is best			
193+16	- Recovery info - @ 16,330 NM (No VHF)			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				316
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
193+26	EMS entry check + pri water activation			
	taking pictures - will go to entry			
	altitude shortly			
193+26	No VHF @ 15K			
193+30	Secondary loop up + operating OK			
	going to entry attitude			
193+34	In entry attitude - omni attitude			
	C won't hold lock			
193+37	EEcom apparently didn't know difference			
	between horiz check + entry attitudes			
193+40	No lock with S/C ★			
	for some time apparently			
	Need new State Vectors ★			
193+47	Data back -			
193+49	Did P-52 , sent star check			
	going to 298° - omni C should be OK-			
	No VHF @ 11,600 NM			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				317
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
193+52	- 3/c in 30 min horiz check attitude			
193+59	No CM RCS preheat Req'd			
194+02	H ₂ tank #2 cycle fans			
194+06	First Report of VHF - @ 9160 NM No estimate of quality			
194+10	State Vector to 3/c -			
194+11	100% VHF @ 8300 NM			
194+11	VHF - check OK - 8000 NM			
194+16	RCS Press - OK			
	06.3 vs 0.64			
	V - 6.48 vs 6.49			
	R - 14033			
	RET - V vs - 0214 vs 2:13			
194+26	194:33 298° @ Attitude check easy +57 new ΔH			
	RCS Thruster check - Ring 2 O.K. Ring 1 OK			

FLIGHT DIR MISSION LOG		DAY	REV	PG 318
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
194+29	CM RCS barely audible - some anyway			
	Horizon check passes			
	F-11 1/250 - entry fireball			
194+34	Balls on line -			
194+35	F-16 - 1/250 - shooting on sun -			
194+37	Sun going down on schedule			
	Tgt - 14° 7' N 171° 31' W			
194+42	F/C #2 OFF			
	Stand to no power -			
	Pri Rad Bypass			
194+47	yaw to Sep			
	Pri Evap O.K.			
	CMC - looks Good -			
	Sep attitude -			
194+49	Pyro Arm			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				319
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
194+49	SM Sep -			
	bus voltage holding			
	194+55 - hand over			
	S-band to high			
	- Back to entry altitude			
194+53	SM going by high & right -			
	spinning + thrusters firing -			
	tape recorder - still B/P			
	15828 - @ 400 K			
194+59	Moon still in view			
195+02	Went to CMD Reset -			
	No Joy on DSE			
	Black out on schedule			
	Rescue 1 - has Visual			
	- Hornet - Visual			
195+10	Airboss Contact			
195+11	Stand @ 1642 - HR-2			

FLIGHT DIR MISSION LOG		DAY	REV	PG
				320
SITE/ACQ/LOS	FLIGHT EVENTS/HISTORY/BRIEFING			
195+11	Hornet Radar 120			
	S/c - 169.15 13,30'			
	Sonic boom			
	3500' down - OK.			
	VHF beacon - HR-2			
	2500'			
	Retra 1nm South 1nm long			
195+17	1500' -			
	Hornet Visual			
195+18	Splash down			
195+19	Stable II -			
	Dye out			
	13nm from Hornet -			
195+23	3 flotation bags visible -			
195+24	- Still in stable II			
195+25	stable I			

[illegible]