

OPS-2

OPERATIONS LOG

MISSION/TEST

DAY 16 107 SUN

1

Terminal Count SRT NCG 741

DATE 16-4-72

Date/Time	Sub-System	COMMENTS	Initials	Action by
16/0217		Start SRT Ph. 1	Pps	
0221		Start A/G Tests		
0230		A/G checks complete		
0323		The SRT Ph 3 will be supported by PCM SIMS, MTRS RED COST, completed		*
0341		UDB 1/2 S/L, DTU x4, TTY x2, AMQ, TCT		
0413		PAM 1/2/3, MTU 06/11		
0417		MTU 04/11 IT-#1, excessive parity errors, but cost says GREEN, problem not for SRT, use it for SRSMT D/W		*
0437		Start COST PCM		
0450		Voice/data checks complete with FCSW.		
0455		PCM cost completed - OK		
0458		CFM / CMD STAT checks complete		
0520		UDB COST 1/2 UDB #1		
0528		Cost initializing single mode in CPI, waiting for HSKX UPL/UDP		
0530		Configure CP2 for TLM for AMON I/F checks.		
0531		TLM cycling & DARTS - OK, AMON cycling		
0547		#1 UDB 1/2 through HSKX - OK		
0552		CMD software cycling		
0554		Change SBC to 'C' and DARTS - OK		
0557		Problems encountered with 1218/MTU TT-1 loading STAT RAPID		*
0610		CP3 suspect red, faulting with RAPID		*
0612		Attempt to load same RAPID into CP4 - OK		
0633		CP3 is RED, cpts scoping Ph drivers		
		CP4 is configured to support Ph 3 with SABRE		
		The 1218/MTU is OK as problem was CP3		
		STAT UPDATE on CP3 sent.		
		Permins patched for Ph-3		
		Voice lines configured		

OPERATIONS LOG

MISSION/TEST

2

Term Count NCG 741

DAY 107 SU

DATE 16-4-72

Date/Time	Sub-System	COMMENTS	Initials	Action by
0637		Start Ph - 3	PJA	
		CSM command sequences thru HSK SYS 1		
0648		NET 3 Conferenced		
0652		CSM SABRE testing complete (Seq. 23)		
0654		CADFISS is 29 ptr received		
0655		Off console for 1218 eng investigation - CP3		
0707		Back on console.		
0710		All external nets configured		
0729		Phase 3 completed with Back end.		
0745		Final ENG START to comms.		
0750		Phase 3 Complete.		
0752		All H/S & L/S lines configured		
0753		All sim console de-configured		
0809		Data ready for ^{LBR} cadfiss 307/309 formats.		
0824		Start I/F testing		
0829		HSD cam on BIC/ENG.		
0856		RTC call for I/F; NO CO on NET 2, passing ACNIB		
0857		EMD I/F Start		
0858		LBR TLM GO.		
0903		EMD I/F GO		
0905		Histories complete & EOF		
0907		Configured for HBR cadfiss fmtr 3008/016		
0914		A/G checks	M -10	2528
0915		Start Keys Mod checks	S -12	2479
0916		HBR cadfiss data on.		
0916		A/G D/C Test tones	CSM -11	
0917		A/G testing is go	LM -10	
			LC -10	
0924		HBR cadfiss ^{+Bio} is go		
0926		All HSD off.		

OPERATIONS LOG

MISSION/TEST

35

NCG 741 TLC # 1

DAY 107/108 M⁰

DATE 16/17 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
16/2102		Tone level checks being performed on Net 1 in W/Room.	B/S	
2108		Verbal release by GOPS. to condition A.		
2109		Tone level checks - OK. on Net 1		
2145		GOPS advise H-70 at 17/0147 Z		
2155		GOPS advise change to condition B.		
2209		Commence a Ph-1		
2220		Start A/G checks. csm/LM to NET 1 only.		
22		Computers to run COST DFU/MTU/		
2235		Computers stopped for COST however decided to recycle ops software because of condition B.		
2246		all software cycling, loads +2 recovered. FMTS 8/13/16		
2311		uWave Tx fire alarm, all B/U CCTS lost.		
2313		uWave back up.		
2235		ETO for Ph-3 : 1/2 hr.		
2350		Timing checks complete.		
17/0015		ETO for 8 SBI tracking checks 4 min		
0025		Wing tracking checks aborted due to lack of time before the Ph-3		
0032.		Configured H/S formats for SRT Ph-3		
0036.		Comms configured for Ph 3		
0038		Start Ph-3 with CPTRS + Back end.		
0043		Seq. 9 complete		
0048		Seq. 14 complete		
0055		Hold at Seq. 21 for U/L above wing. HSKX		
		Onsite testing still in progress.		
		Wing tracking testing ETO		
0125		*Subre looping, achieved support by RECYCLE 710		*
0129		SRT Ph 3 complete.		
0150		History tape rewind. History req - no CMDS XMITTED		
0151		Load INV shows Prelaunch and 5907 + 5908 still in because of return from standby B condition		
		At 0137 Z IU TLM was commanded OFF		

OPERATIONS LOG

MISSION/TEST

6

NEG 741 TLC #1

DAY 108 MO

DATE 17 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
0212		RTC STAT Reg → 1/c RCV O'FLO C19P.	P/S	
0213		Comms ray modem OK.		
0216		TLM Recycle attempt		
		Changing modem 3 for modem 5.		*
0217		DTU in sync. This is similar problem to a few days ago.		Comms
0218		CMD I/F start, at same time FE 600 checks on Net 4		
0219		LM power up for contingency c/o for possible cmd leak QDS D/L 13 and A/G 17. LM → Net 1		
0224		SB1/SB2 took CMD config down. without asking in middle of CMD I/F.		* USB
0225		CMD I/F restart again		
0232		CMD I/F GO. EOF Set.		
0237		No SCM by H-20. TRK query. can't get in		
0238		TRK says steady on SCM		
0242		HSD on to NOCC, ACSW verifies		
0245		PP calls still going on. RCDRS/WING.		
0245		TLM/CPTRS PP checks complete.		
0250	40	AOS CSM ^{PM} prime -133		
0252		AOS CSM FM -115 (prime)		
0258		Time comp test started (SB1) OK.		
0300		μ Wave alarm, fault came good again (SB1)		* USB.
0314		The wing did not complete their PP USB calls with recorders. before AOS.		* HSKX
0317		Biomed on out CEF.		
0321		IU Pm sp -125.		
0328		Dist IU at -111 both P+W but <u>NO</u> IU TLM PCM lock, even though threat was -122 in SRT.		
0349		Load control cleared out all loads - GCF-60.		

OPERATIONS LOG

MISSION/TEST

7.

NCG 741 TLC #1

DAY 008

DATE 17 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
0350		H/O CSU uplink 6 downlink 2 briefing by RTC.	P/S	
0355		H/O complete.		
0438		1:25 SDDS lock bit out. acc to TIC. Light out at OPS, SDDS selected another switch pos'n and it came good.		* USB.
0449		I/U H/O UPL mode 1 HSKX SYS 3		
0454		LOS IU.		
0454	AI	AOS IU & valid 2 way. RTN.		
0455		QDR failed to key. contact manual key.		*
0504		Switch run by SBI on S/C AGE and GND AGE at exactly 04:51:40.		
0532		Cam H/W malfunction P/O.		*
0600		HAW unable to correlate for range on IU because SB2 did not have Range code only range clock. SB2 did not know whether it should be on or off and asked for prime what we had. The conversation on 'E' loop indicated that someone decided it was wrong and selected RANGE CODE without asking OPS or SB2.		* HSKX
0605		HAW then declared range correlation valid.		
0632		RTN		
0633		012:40 GET Change RTN to zero.		
0635		Changed RTN = 0 complete.		
0637		gradual decrease in CSU sig strength; setting up for PTC mode.		
0655		Shift H/O to IHKS	P/S	

OPERATIONS LOG

MISSION/TEST

10
OPS 2

NCG-741 TLC # 2

DAY 106/109
DATE 17/18 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
1302		Twx & Doc's cleanup complete. W.K./P.V. Wright agreed to an early MLS of shift B @ 1315Z if all post-pass work completed. Shift Supps Vol 2 reviewed. Mud back in mode 1		
1353		Called NST left a msg for Geoff Sweeney to ring if he gets a chance.		
1438		Geoff Sweeney called - passed on problem with Astrom P/B time limits CES routine & other comments. They will look into them, promised to send them a copy of our selected word tapes to Code 834. NST USB called re Alsep - 4 VCO module req'n left nte for M Ewanett.		
1737		Supps review complete. Shift STDN 502.16 review.		
1958		Shift H/O BTS on.	JMS	
2145		Start SRT Ph. 1 delayed due to HSKX still at breakfast.	P/S	
2150		Start Ph -1		
2157		Start A/G		
2202		Phase -1 tests complete.		
2235		Timing checks start.		
2239		Timing checks complete.		
2245		All 1218 checks complete.		
2256		All 642 checks with COST complete except PCM & UDB 4/6.		
2347		Decom 4 lock light intermittent on IOCC & CPT/R CONSOLE		DATA
2350		AM on configured in CP.4		
0001		Step 6 Red all Decoms / both CP's		DATA
0007		Perun step 6 - GREEN.		
0008		CP1 COST single mode waiting UDB n/h. P+W.		
0010		Nets 1, 2, 3 level checks completed with ACSW		
0017		Nets 4, 6 checks completed		

OPERATIONS LOG

0230
123

MISSION/TEST

DAY 108/109 TV

11

NCG 741 TLC #2

DATE 18 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
18/0029		UDB h/l prime go	D.J.S.	
0039		UDB h/l wing go		
0040		Config start for Ph-3.		
0041		Sabre configured in CP3.		
0045		TLM cycling		
0047		CMD cycling with parameters set for mission		
0050		Start Ph-3.		
0053		SV order ordered links 1 ³ 00 - 1500K for TV.		
0059		mcc cancelled requirements for TV, S.V. advised us.		
0100		Seq. 14 complete.		
0114		End csm checks.		
0116		Start km checks. seq. 28.		
0127		km checks complete.		
0128		Phase 3 complete.		
0133		Configured for I/F testing		
0158		Start line checks.		
0200		Line checks complete		
0204		G'OPS configuration for cadfirs. Systems weren't configured Prime wasn't ready for CMD I/F.		USB-1 USB-2
0206		Had to delay 2 mins.		
0207		Start with wing. CMD I/F		
0211		A/G at 'A' config for km conclusions. at AOS.		
0213		Start TLM cadfirs		
0214		CMD is go. EOF confirmed		
0215		Cadfirs Binned on date, - no problem.		
0222		Sorted Rio 416 - GO, then 456 - GO		
0226		Cadfirs TM is GO.		
0227		HSD data off.		
0235		Start A/G checks.		
		Mank.	M -12	2526
		Space.	S -13	2478
0236		Keys. checks 100%		

OPERATIONS LOG

MISSION/TEST

12

NCG 741 TLC #2

DAY 109 70

OPS-2

DATE 18 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
		CSM ✓ LM ✓ LCRU ✓	APL	
		CSM -6 LM -7 LCRU -7 D/L tones		
0240		A/G testing is GO.		
0250		1218 reports HRTC garbled EOM + SOM.		
		Comms provided check copy. CP-3 TTY problem		CPTR
0304		CPTR + DATA PP checks complete.		
0310		AOS CSM prime		
0313		CP3 is 'hung up', Rapid program.		CPTR
0315		Intermittent CSM decim lock FM S/S -124		
0319		Auto take CSM S/S 106.		
0326		CP3 reloaded and on line		
0330		Comms had wing HSD patched to DAP DTU, which could have been the cause of CP3 'hang up'		COMMS
0345		CP3 hung up. with RAPID again.		
0347		Report to NTWK on CP3, recommend use CP4 for DAP functions		
0350		NBT requested status of CP3 and will send ISI for reconfig of ASTAM computer		
0353		CP4 configured for DAP - OK.		
0355		AOS LM		
0357		Decom 4 lock on LBR		
0358		Change to HBR on LM.		
0359		" " LBR on LM.		
0413		Voice code B. PBK for GDS. CSM		
0405		Fault reports sent on 1218 problems.		
0428		Lic could not see ^{TLM} FM lock bit for CSM, unable to check with AFMON, used HSDM to verify.		
0430		Bit set OK fnt 9/241		
0432		Loss FM subcarriers		
		Lic monitoring formats 748/49/50 - alas no amon.		
0511		LOS/AOS CSM. S/S -124 decreasing, GDS lost the upl.		
0511		CSM LBR.		

OPERATIONS LOG

MISSION/TEST

DAY 110 WS

17

NCG 741 TLC # 3

DATE 19 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
2240		OPS - 2 10 mins late due to Transport delay	PJS.	
2044		CP3 hung up. in program MEMORIES II		CPTR.
2045 2050		Start Ph. 1		
2051		End Ph 1.		
2053		Delay A/G 10 mins for OPS-2 to perform pre-SAT duties		
2103		Start A/G checks.		
2108		A/G checks complete.		
2135		CPM CHECKS, complete.		
2137		STAT LIGHTS CHECK. Complete.		
2140		UDB cost Wing Wing A/L complete.		
2142		DTU, AM Φ , ST ^C ST, GNT, checks complete.		
2145		Tuning checks complete.		
2204		TCT STATUS OK, CP3 diagnostics all OK.		
2242		UDB A/L Prime complete.		
2242		CP3 cycled RRPID OK configuring for TUMS.		
2253		Problems possible on Nots 2,4,6, PMG working on VFT problem.		
2258		Met 2 configured to B/U cut on uWave. 232		
2321		SDDS 3 CSM FM ^{TLM} encoder Switch U/S.		USB.
2336		PCM COST start		
2348		SDDS IN LOCK encoder encoder switch replaced		
2358		TUMS testing start with wing		
0004		COST completed PCM OK.		
0006.		Computers/Data configuring for SAT Ph 3.		
0017		VOGGA checks completed		
0023		Computers/1218/Data configured for Ph 3.		
0030		Start Ph - 3.		
0043		Complete CSM tests Seq. 28.		
0056		Start LM testing seq. 31		
0105		LM testing complete Seq. 39		

OPERATIONS LOG

MISSION/TEST

18

NCG 741 TLE # 3

DAY 110

DATE 19 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
0117		Called back PKs informed then IG on site 1300K.	PJS	
0119		A/G CPTs with wing commenced.		
0119		SRT stat sent		
0127		H/S & L/S lines configured for 1/F		
0133		SBI completed TRK testing with TUMS		
0139		IC RCV OFLO CAP P/O on TLM		
0142		DTU IS IN SYNC		
0202		LOS/ROS		
0206		1/F status to GOPS, MCC-3 is deleted.		
0210		Cadfire FM testing start 416/456, 8/16.		
0217		Cadfire FM is GO.		
0220		CMD 1/F complete and GO.		
0221		HSD off.		
0227		CMD CEF for CMD H CSM I. 5700033045		
0234		A/G CHECKS. MARK. -12 2526 SP -13 2478		
		KEYS 100%		
0237		CSM UPL GO, LM, GO LCRU GO.		
0240		CSM D/L -7 LM -7, LCRU -7		
0241		A/G testing is GO.		
0250		GOPS Release from cadfire		
0317		AOS CSM prime s/s -145		
0321		CSM, decum lock on LBR.		
0329		CSM s/s. -139		
0346		AMEN NST data called re. 1218 CPTA fault messages, they required clarification of each message		
0400		HBR csm		
0402		LBR.		
		Amem configured to 2011 mode		

OPERATIONS LOG

MISSION/TEST

22

LOI NEG 741

DAY 110

DATE 20 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
19/1828		Comms., μ Wave links ch #6 Rx, intermittent LOS of signal ETO 20/0200 Z	Paf.	
1848		SB 2 requires a loan of our H-BAND TEST SET, they are sending someone over to pick it up.		
2000		Start Phase 1 SRT		
2008		Start A/G Testing		
2012		A/G testing complete.		
2032		CPTM and CPTR COST checks complete.		
2040		CP-3, CP4 diagnostics complete		
2053		SDDS demod 3 FM voice lights out on IOCC, no OPS console tech on this shift. Use port trk.		USB
2104		DTU, AMQ, TTY, MTU, PAM, GMT, completed		
2105		Problem SYS 4, GSA #3 failed, no spare at HSKX Prime to check out their spare and send to HSKX		
2120		TCT complete		
2136		μ Wave green, D/L checks progressing normally.		
2138 ^{to}		UDB 1/L prime green.		
2150		NST USB discussion re μ Wave status.		
2300		Start PCM COST		
2308		Problem on 70/100 70 KHZ subcarrier remoting to wing Syst. 4 via μ Wave. Switch to B/U equip.		USB
2318		SDDS encoder checks showing all OK except 2 and 3 FM voice in lock indicators		
2325		CPI configured for COST awaiting USB 2 1/L UDB		
2329		CPI TLM cycling		
2329		Aman configured for Ph-3		
2345		UDB COST thru USB 2 Red on SYS 3 and 4		
2350		Remun thru USB 1 shows the NORMAL csm demod on UDB # 2 is Red. Switch to UDB # 1 for support		CPTR
2352		UDB 1 check with USB 1 - OK		
2355		UDB 1 check with USB 2 - OK		

OPERATIONS LOG

23

MISSION/TEST

DAY 11

NCG 741

LOI

DATE 20 APR 72

Date/Time	Sub-System	COMMENTS	Initials	Action by
2356		Investigation still in progress on UPDATA 70KCS to wing by SB1	PJS	
2357		Configure for wing TUMS. SB2.		
0051		The UDB 2 csm demod adjusted and COST test with USB 1 - OK.		
0053		Using UDB #1 for support, COST test again indicates - OK.		
0008		Configuring for CMD software in CP1		
0010		Start D/L tests Ph-3 with USB1		
0015		Wing TRK tests in progress.		
0016		Phase 3 data/cptrs etc sequences commenced		
0034		Sabre configured for Ph-3		
0043		Nets 1 2 3 voice checks complete at 17CSW		
0045		Completed CSM checks and SM 4/6.		
0050		A telephone "engaged signal" copied on ALPHA loop at very low level. Comms advise that HSKX has PMG telephone system interfaced to JPL intercom and linked via 112A system at DSN wing to HSK via <u>uWave</u> . Removed at 0009.		HSKX
0059		PCM decom 4 lock light out on IOCC		DATA.
0105		Phase 3 data/cptrs completed		
0120		All systems released to I/F preparation		
0122		HSKX to send STAT UPD on uWave problem.		
0204		Stat from wing still not in. IG investigating		
0206		Ready for I/F		
0209		CMD I/F start		
02		CMD I/F complete + GO.		
0217		Start TM / Bio cadpiss		
0218		Redr running on wrong speed		DATA
0223		TM cadpiss complete + GO		

OPERATIONS LOG

OPERATIONS LOG

MISSION/TEST

DAY 111

29

NEG 741

EVA # 1

DATE 21 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
20/2000		On site, start SAT preps.	BJS	
2013		All systems green.		
2015		Start Ph-1		
2022		Start A/G testing		
2025		A/G complete		
2031		SDPS 4A red for PM TLM.		USB.
2049		UDB 1/2 cost thru wiring - OK. UDB 1 and 2.		
2052		Will use UDB #1 for support.		
2056		CP3 + 4 diag diagnostics complete		
2057		COST diagnostics complete except PCM, MRU, and UDB frame.		
2131		GOPS alert on possibility of PKS requirement due to abort of PDI.		
2139		SD alerted + briefed		
2150		Start timing system checks.		
2154		Timing checks complete		
2258		Decoms 1 + 2 format lights checks OK.		
2305		TSS report, reports DATA did not submit mission log for 202000 DAY 111 (L/O NOS 4-9)		DATA.
2315		SDPS 4A green + Start COST PCM		
2325		Decom format lights checked for decoms 3 and 4 Decom 4 lock light ^{on IOCC} is intermittent and all format indicators on decam #3 are incorrect. DATA admits that it could be bit 2 ⁴ intermittently dropping		IOCC
2330		The ETD on HSKX problem with SCO 2 was missed by 1/2 hrs. USB NST reminded us and verbal status of GREEN at 20/2330 Z given to NST. HSKX requested to TWX an update on PONY CCT.		HSKX
2353		PCM COST completed.		
2354		Data/Computers preparing for Ph-3. and also UDB #2 configured for support		

OPERATIONS LOG

MISSION/TEST

DAY 112

30

NCG 741 EVA #1

DATE 21-APR72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
21/0007		Computers ready for Ph-3	P/S	
0008		Start computers/Data Ph 3, Comms configured		
0011		HSKX asked for 2nd time to send Stat UPD on Pony cct on Item 2.		
0012		Problem on getting LM voice on SYST 4 uplink 30KCS sub carrier at wing.		
0017		Prime ^{tech.} uWave says it is on the link		HSKX
0017		Wing uWave tech says it is not.		
0018		Tone on for testing. Prime confirms it's on the link		
0019		Wing confirms it is there now. but nothing on verification Rx output.		
0021		G'OPS requests ETO on our SRT as they are unable to run CAPFISS at the time stated.		
0027		They advise us to keep on our time line		
0029		No ETO available on Wing UP voice problem.		
0033		Start Seq. 15 csm checks.		
0041		Start Seq, 29		
0044		Holding at Seq 30 waiting for LM.		
0046		Pick up Seq 30		
0047		Still no definition of problem on Switching unit 4 ^{mode sw unit}		
0050		it is a go in HSK is sending a spare		
0056		HSKX asked for Stat update now for 3rd time		
0102		Holding at Seq 33 for LERV.		
0106		Received STAT from HSKX		
0115		Unable to test SYS 4 in LM for uplink command		
0119		HSKX STAT update to comms		
0121		Comms checking lines 123 at ACSW.		
0125		Comms configuring H/S + L/S lines for I/F		
0126		1218 CP3 released for USB support.		

OPERATIONS LOG

MISSION/TEST

DAY 112

31

NCG 741 EVA # 1

DATE 21-APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
0137		Cadpirc tape checked all decoders.	<i>PPS</i>	
0138		LOS / ROS. entered.		
0140		SRT Ph. 3 complete		
0225		104 + 29 + 36 TD., LAGEN tapes not cut yet? use CPA		
0244		Not ready for 14-70 cmd i/f		
0244		Wing not ready for i/f, NO ASTPM		
0245		w/ i/f start with prime		
0249		cmd i/f is GO.		
0254		Start Reined 423 / 401		
0257		Start Eng.		
0259		Cadpirc TM testing is GO		
0302		TLM HSD off.		
0312		Start A/G testing		
		Mark - 9.8 2528		
		km SYST 2 / CSM SYST 3 Space - 10.2 2478		
		D/L tones - 6 all.		
0316		Hold on CSM UPL due to cadpirc		
0317		A/G complete.		
0328		All cadpirc testing complete.		
0351		First AOS km prime		
0356		Prime km PM S/S -130		
0412		km HBR threshold still just below. (SRT-124)		
0439		CSM # 2 DSE ^{DMP} 19 PBK required but NO CSM AOS as yet. Expect AOS in 5 min		
0441		Rx 4 to CSM FM. S/S -108		
0445		CSM HBR LOK. AOS S/S 106 109		
0450		Less than 2 minutes on dump recording recorded		
0453		LOS FM D/L		
0456		LOS CSM w/o # 17		
		dump # 19 ^{GET} 88 55 025 w/o # 8 89 33 29 CTE 88:11:19 CTE 88:49:45		

OPERATIONS LOG

MISSION/TEST

DAY 112

DATE 21 APR 72

36

ACG 741 L/O 22 POST PASS [CONT.]

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
1517		TRM Playbacks for DSE dump msgs completed Twx's to comms. Only personnel left on site scheduled to leave at 1500Z one USB eng & Servo 1 checking a servo problem + Redcs dimming tape labeling.		
1523		Many queries to MAD re changes in LM SPE we also noticed Glucks on this after H/O. MAD then H/O Sys 1 to 2 & back to 1 & back to 2. etc		
1659		CDR on surface EVA 1.		
1800		LCRU power up		
1800		Shift H/O To BJS from JHS.	PJS.	
^{21/} 2045		Start Phase 1 SRT (EVR #1 Day 112)		
2051		Start P/G checks.		
2059		Seq 1 problem - OPS 2 had H/SRT plugged in		
2115		PKS 29 ptr processed		
2134		CFM checks complete		
2146		Start wing Turns		
2213		PKS 29 PT processed sent on TELEEX. Verbal ACK		
2248		All COST complete except PCM, VDB 1/6 prime and MTU CH #11 T.T.3 (motor being changed.)		
2259		Prime VDB 1/6 complete		
2304		MTU #11 TT3 COST complete.		
2328		Prime Turns completed		
2353		ARGEN processing completed, and all TRK testing		
^{22/} 0016		Amom configured for Ph-3.		
0033		PCM COST start		
0100		Computers Data & Comms. configured for Ph-3.		
0101		Commence Ph-3		
0127		Start LM Sequence 29		
0141		End Phase 3		
0145		Comms lines H/S & L/S opened.		
0150		SRT complete except for PKS testing		

OPERATIONS LOG

MISSION/TEST

DAY 112

DATE 22 APR 72

37

EVA # 1 NEG 741

OPS-2

Date/ Time	Sub-System	COMMENTS	Initials	Action by
0201		PCM DECOM 3 format lock lights are still U/S, exactly same as yesterday's problem Ref OPS-2 log page 29, time 2330Z		IOCC
0259		METS 4,5,6, checked.		
0311		Trouble shooting on the DECOM 4 lock light on IOCC has been abandoned (I/F - 3 mins)		
0313		G'OPS Met 3 conf.		
0315		Start cmd I/F		
0317		Start TM cadfiss		
0318		MTR U/S ^{failed to start.} ETO: 1 minute to repair		DATA.
0319		CMD I/F is GO.		
0320		MTR rolling		
0324		TM cadfiss is GO.		
0341		Start R/G testing MARK - 9.3 f 2528 SPC. - 9.9 f 2478 KEYS - Kor Mod. GO.		
0345		Tone CSM -6 km -6 LCRU -6		
0350		GOPS release from I/F testing		
0357		PP checks complete Data/CPTAS		
0406		EST HSKX AOS 0512		
0417		Yesterday's AGC cal TWX had typing error Comms to send SVC message LCRU Rx 7 vice 1		Comms.
0418		Initial AOS CSM PM -143		
0423		CSM PM -109 Decam lock.		
0425		Lock mode 11 dump		
0428		1/2 Dump terminated but no useable data recorded at HSK - 40 signal		
0430		CSM mode 12 D/L. S/S PM		

OPERATIONS LOG

MISSION/TEST

DAY

114

MCG 741

LO DAY 4

DATE

23 APR 72

OPS-2

14

Date/ T 3	Sub-System	COMMENTS	Initials	Action by
22/2242		Start Phase 1. SRT	PJS	
2251		Start A/G testing		
2254		End A/G testing - GO.		
2315		Cam checks complete.		
2337		All COST testing complete, ^{except} UDS 1/L, MTU, PCM		
2345		MTU COST complete		
2354		Wing Turns complete.		
0020		Prime & Wing Lining checks complete.		
0118		PKS 29 ^{processed} str. sent to via TELETYPE		
0158		PCM COST start		
0213		Start VOG A/F tests		
0217		PCM COST completed		
0223		Lagen tape out for day 113 vice 114, configuring CPA for LAGEM rerun ETO 1 1/2 HRS		
0230		Configured for Ph 3.		
0304		MTU CH 11 TT #2 WRITE ERRORS LOG TP. Using TT.1		
0305		Start Ph 3		
0314		Line checks with DLK. OK		
0320		Holding on step 29, awaiting D/L		
0341		Completed 29 step 39.		
0346		Post SRT procedures completed		
0349		all lines configured		
0412		G'OPS GO - 2W LM GW 2Wcs in		
0412		CMD 1/F start		
0414		CMD 1/F complete GO		
0416		Start TM cadfirs 423/410 Rio		
0427		TM cadfirs is GO In the middle of cadfirs telemetry, a CEF came in for RPL 016? cadfirs said it was not theirs?		
0439		Start A/G testing Delay for config setting up. ETO 1min		

OPERATIONS LOG

MISSION/TEST

DAY 114

DATE 23 APR 72

45

NCG 741 L.O. DAY 4

OPS-2

Date/ T	Sub-System	COMMENTS	Initials	Action by
0440		Start MARK -7.8 f 2530 Space -7.9 f 2479	PJS	
0441		Keys & Mod csm ✓ LM ✓ LC ✓ D/L zone csm -4 LM -4 LC -4		
0442		A/G testing complete. G.O.		
0413		Inhibit AOS in Keyhole.		
0514		Recorders & Data are still in A/GC C94 config		
0510		TIC HSD is ON CEF		
0516		Dump no 54 but sig still too low.		
0518		Recorders rolling on dump 155:36: 55 ⁴⁰ GET		
0519		Still in A/GC cal config		
0521		Csm PM-104 FM-100		
0521		Wing in A/N T and radiating !!! Op. error.		HSKX
0521		Terminate C94S		
0521		Un inhibit decans & PMQ EWS/SP/MA		
0529		Wing AOS over LM -140 PM.		
0531		LM LBR decan lock. -130		
0535		Log dump write error. TT #1		
0543		HSD on to NOCC		
0551		EMOD. start 114:05:50 end		
0551	56	EMOD LOS. 05 51 50 Z.		
0556		Failure of Brush Redr #1, repatch to B/U #3		DPAT.
0559		Windgusts to 45 MPH - Prime		
0602		LOSS dump modulation → FM 12.		
0607		Code ^{sim} 3 + csm Code 2 dump 54		
0608		No AOS at start of dump. 155 36 40		
0609		Tic delete flts. request.		
0615		Onco requested upl mode 0?, not 2-way.		
0615		LOS csm L.O. 12 A2		

OPERATIONS LOG

MISSION/TEST

51
OPS 2

NCG -741 Post TRACK EVA3

DAY 114/115

DATE 23/24 APR 72

Date/ T	Sub-System	COMMENTS	Initials	Action by
1901		G/pops called & said PKs would be released back to a 4 Hr callout status as from now. Informed Morrison at Sydney video - will Telex PKs.	PJP	
1950		A copy of the release message indicating PKs to 4 HR. standby condition sent on TELEX at 2007 Z.		
2215		Start SRT APOLLO/ALSEP for h/o Mo. 55-59		
2322		Start A/G checks.		
2326		A/G testing complete (all sequences)		
2350		One LAGEN (moon center) tape processing for HSK.		
0018		PMG report problems on NETS 2,4,6 ETO ^{4 HRS.} 4 HRS.		
0100		All timing checks are complete.		
0103		PCM COST, UDB h/L and MTU to complete		
0118		UDB h/L test HSK - GO		
0120		Unable to perform UDB h/L prime until Feed Test is finished		
0148		Drinking tests with wing complete		
0146		Start PCM COST.		
0156		GND Rx AGC/SPE only outstanding tests at wing		
0200		PCM sync status problem in COST step 3. only on CP-1. May be due to mtu/pcm together?		
0222		UDB h/L prime is GO.		
0223		MTU ch #11 testing in progress		
0232		Data configured for Ph-3		
0323		Phase 3 start		
0337		Hold on Seq 29 for LM testing		
0408		Lines config 135 normal Net 2 NCV 232 Net 4 NCV 234 Net 6 NCV 236		
0413		Voice check to NETWORK not OK OK 6' Voice and NETWORK		
0419		All configured for I/F testing (Data end)		

OPERATIONS LOG

MISSION/TEST

DAY 115

DATE 24 APR 72

52

NEG 741 L.O's 55 thru 59

OPS-2

Date/ T	Sub-System	COMMENTS	Initials	Action by
0423		Terrible noise on all loops configured to links whenever wing receivers are tuning	BJS	
		Problems are said to be on BUW levels going onto links at HSKX end acc to HSK comms		HSKX
0428		Alpha loop has been removed off link for checks.		
0431		Comm Super says some "instability" in links at the moment.		
0433		Data link checks.		
0448		Start CMD I/F		
0445		G'OPS briefing		
0452		TM cadfins start		
0454		CMD is GO.		
0458		TM cadfins Cadfins Bio Sectors B+C like full		
0505		TM cadfins + Bio is GO.		
0518		A/G testing Rep		Take checked Post cadfins no problems?
		mark - 9.6 f 2528 Space - 10.1 f 2477		
		Keyes. + mod CSM GO LM GO		
		D/L tones CSM - 6 LM - 6.		
0522		R/G is GO.		
0554		ROS CSM L/O 54 Mode 12 D/L.		
0600		LOS LM for power down.		
0603		CSM LOS L/O 54 No dump data recd.		
		<u>Lunar Orbit 55</u> PRED ROS 064851 LOS 080139		
0619		load 1815/1816/1817 H/O Brief. 180 52 00 per SCM		
		A/G alpha assumed. CSM only.		
0635		ROS ^{on} mode 4 01 00 as TRK not sure what mode LM is in		

OPERATIONS LOG

MISSION/TEST

DAY 115

53

MCG 741 L.O.S 55 thru 59

DATE 24 APR 72

OPS 2

Date/ T	Sub-System	COMMENTS	Initials	Action by
0640		Dump voice R/T Ploka code B. at FOS	PJS	
0641		Net Net 5 configured for TRK. Tic advised		
0642		comms checking.		
0643		Net 5 configured for Vx playback.		
0643		F/G checks are GO.		
0646		Tic, Rio on CEF		
0647		Loads 0032		
0		FOS CSMA PM FM No FOS yet.		
0654		Momentary sig at wing. Sweeps in progress		
0654		Rx 1 is sweeping		
0656		RF contact 5+7		
0657		Mode 12 d/l.		
0658		Not valid 2way.		
0659		CSMA rate set out on -100		
0701		Require D/L only -103		
		Invalid one way lock. at FOS had to reacquire D/L.		
0702		Fm 96 PM -103		
		Valid mode 12 D/L lock.		
0704		0.00.00 to Lm as no D/L seen.		
		All during the FOS procedure there was		
		loud squealing on all nets as the system		
		sweep occurred. ref previous problem on uWave at 0423Z		HSKX
0708		DSE no 69 GET 181 +26 +20		
0708		FKG CI 0062 J ^{DYN} CI 0060 J DYN Noise		
		Resp. CI 0200 R Dym + noise others stable		
0715		WB nr 2 failed to lock on dump. changed		DFTF
		NB more data loss approx 30 sec		
0720		At 06:57:16 Z and 06:57:44 had VDR error		
		during load uplinks. 1232 indicated no GO		
		for CMD bit in CSMA, also at 07:08:02		
		indicated an RF error		

OPERATIONS LOG

MISSION/TEST

DAY 115/116

DATE 24/25 APR 72

57
OPS 2

NCG-741 H/O 60 POSTPASS

Date/ T	Sub-System	COMMENTS	Initials	Action by
1800		Shift H/O to Litherland.	L.L.	
		See ops 1 log for Mirror problem.		
2030		Shift H/O to South		
2315		Start SRT	PJS	
2321		Start A/G checks		
2323		A/G checks complete		
2340		All lines affected by the PMG work yesterday (lines 2, 4, 6) is completed and ready for use		
2353		UDB LH prime & wing, completed		
2354		CRM checks & CST lights, completed		
2358		All NETS are now configured as normal.		
0000		Timing checks complete.		
0033		Tracking ^{tests} start at prime		
0043		Anomaly in running wing TUMS, the error printout showed erroneous results the first time however subsequent printouts showed different results without rerunning the test.		CPTRS.
0046		The TUMS program will be reloaded and run again. No problems		
0103		Prime TUMS running.		
0130		Prime TUMS complete no problems		
0137		Start PCM cost.		
0206		VocGR Tests go. S/S 126		
0211		SDDS IN LOK lights GO.		
0226		Comms + 1218 ready for Ph-3		
0231		PCM cost step 1 on PCM 2 to CP 1 which was GREEN		

MISSION/TEST

DAY 116

58

NCG 741 TEC - 1

DATE 25 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
0230		Computers request more time to run MTU COST. ETO 30 mins.	PJB	
0250		OPS-2 to lunch.		
		Phase 3 completed.		
0340		OPS2 back from lunch.		
0358		Pre H-70 I/F config for data & Cptns + Comms all set.		
0406		NST TM says maintain A2 until 4m Battery depletion. Possibly another 8 hrs.		
0433		GET updated by OPN 25/0410z		
0443		FE600 checks with D/L completed		
0458		GOPS Conf		
		FMT 456 546	BLS	
		ENG 8 16		
		TRK C L C L		
0500		Start CMD I/F		
		CMD I/F go 0506		
0509		Start TLM I/F		
0506		CMD I/F go. P 1/2 W.		
0510		TLM I/F go.		
0517		1 LCRV		
		2 CSM		
		3 CSM 21W		
		4 CSM		
0529		V Mark -9.1 2926		
		Space -10.1 2478		
		Go key + modulation.		
		CSM D/L -6 from HSK		
0531		1218 29 pt wrapped around roller.		

59

MISSION/TEST

DAY 116

NCG 741

TEC - 1

DATE 25 APR 72

OPS-2

Date/ T	Sub- System	COMMENTS	Initials	Action by
0545		Verbal UPD to SCM Line #3 "BU CSM" from TRK. S/c in PTC at 705	BJS.	
0601		RF 705 CSM using PM-140		
0606		Intermittent decam lock CSM FM-144 PM-122		
0608		LOS SW to LBR.		
0609		LOCK LBR CSM. NO FM Subcarriers FM-114		
0616		GDS LOS LCRU		
0618		FM mode 12 CSM FM-100 PM-105		
0629		LBR decam lock FM LOS -115 PM-128		
0639		FM mode 12 FM -96 PM-102.		
0640		Intermittent AOS LM on Rx 3 & 4		
0650		LBR lock. LOS of FM.		
0700		LOS CSM		
0700		Bad Cmd lock at GDS		
0701		AOS CSM LBR		
0717		Bio 020 CEF		
0721		LOS CSM		
		GDS unable to acquire (INCO FENDELL!)		
0731		CSM 708		
0732		LBR decam lock.		
0743		FM mode 12 FM -97		
0744		HBR decam lock.		
0745		all RKG's look like noise and RESP is static		
0749		Final LOS LM. h.O. # 67		
0804		Mode 12 lock. Dump # 81		
0805		Mode 11 lock.		
		TIC queried slow change from R/T lock to HBR		
0810		Loss of mode 11 → mode 12		
0815		TIC advises dump 81 ended at 0810 (we queried)		
0816		Loss of mode 12 downlink		
0818		Which Rx remotely queried from TIC. Rx 5 CSM		
0820		HBR		

OPERATIONS LOG

MISSION/TEST

DAY 116/117

DATE 25/26 APR 72

65

NCG - 741 TEC #2

OPS -2

Date Ti.	Sub-System	COMMENTS	Initials	Action by
2019		u Wave interference fixed by using an extra filter - see pwave & SBI logs for details. Apparently no configurations have been changed on the link to cause the problem. Further investigation needed.		USB
2049		Transcast EVA in progress.		
2100		H/O Shift to TBS.		
2100				
0045		Start SRT Ph. 1 TEC #2.		
0051		Start A/G.		
0052		End A/G (csm nets 1 & 2 only)		
0139		Wing tracking tests complete		
0145		Timing checks complete		
0155		Prime D/L checks complete.		
0158		Start prime tracking		
0228		All P+W D/L checks complete, except BUW (w)		
0315		Computers have MTU problems on ch 11 ETO for Ph -3 15 mins		
0330		Extend ETO for computers 15 minutes		
0345		Extend ETO further 10 minutes		
0355		CH 11 mtu nr 1 now green, nr 2 now red.		*
0355		Start Phase 3		
0415		End Phase 3 (csm SM 4/6 only) + Adep.		
0417		I/F config complete.		
0423		Voice Mux problems at prime. uWave link checks in progress		*
0424		May have to declare the link red. - USB ENG.		

OPERATIONS LOG

MISSION/TEST

DAY 117

66

NCG 741 TEC # 2

DATE 26 APR 72

OPS-2

Date Time	Sub-System	COMMENTS	Initials	Action by
0455		Start cmd i/f	PJS	
0457		Start TM cadfins 8-16		
0500		CMD i/f GO.		
0504		TM cadfins is GO		
0521		mark -9.8 f2526 Space -11.2 f2478		
		K+m check. csm ✓ D/L -6.5		
0524		B/G is GO.		
0520		Timing problems. 1218/642. also ^{GMT.} CLOCKS.		
0601		USB-1 investigating & SW to B/U timing		
0601		HRW Dump #97 mode 11		
0603		POS csm HBR decom lock. mode 12		
0616		FM mode 12. 30 sec to Dump 98. IG.		
0617		Dump mod mode 11.		
0619		Prime AOK CSM. -145.		
0625		Loss of dump mod → mode 12.		
0626		Loss of FM mode downlink.		
0635		CSM FM MODE 12.		
0637		CSM FM MODE 11.		
0644		Loss of MODE 11		
0653		Start Dump replay		
0656		Dump 100 MODE 11		
07034		Loss mode 12 downlink		
0710		SHOWING sig level CSM data		
0711		FM MODE 12		
0713		FM MODE 11		
0715		A1 -134 A2 -128.5 3 -132 4 -132		
0721		FM MODE 12.		
		FM MODE 12		
0730		FM MODE 12.		

OPERATIONS LOG

MISSION/TEST

DAY 117

DATE 26 APR 72

67

NCG 741 TEC # 2

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
0734		WB S.C. nr 2. intermittent on PBK ETO 27/0000E		
0739		Dump playbacks terminated - no further requests.		
0740		FM mode #2 LOS.		
0747		20 mins vs 15 mins TIC says where is other 5 mins 182:01:41 182:48:08 CTE ✓		
0749		LOK on Dump mod.		
0753		HGA / NARR / REACQ. Data confirms		
0757		FM mode 12 D/L.		
0759		Loss of 12 below threshold		
0803		254:57:00 H/O CSM RTC brief		
0805		H/O CSM		
0806		FM mode 12 D/L.		
0807		Dump # 104 lock.		
08.0		Range on CSM (PRK)		
0815		FM mode 12 D/L.		
0817		Mode 12 below threshold		
0819		H/S HIST & EOF		
0824		LOSS / FM mode 12. LOS.		
0824		Dump nr. 10 ⁵ mode 11		
0826		Dump lock mode # 11		
0830		CSM PM -98 pm. RX 5.		
0834		Loss dump mod. → mode 12		
0835		Loss mode 12		
0839		HS hist & EOF		
0843		Ant Rst lock on mode 12		
0845		lock on mode 11 dump # 106		
0853		loss of dump → mode 12		
0854		loss of mode 12 — Down on		
08.7		HS hist & EOF		
0901		Ant Rst — lock on mode 12		
0903		lock on mode 11 dump # 107		

OPERATIONS LOG

MISSION/TEST

DAY 117/118

DATE 26/27 APR 72

71

NCG-741 TEC# 2 PostPASS - TEC# 3

OPS 2

Day Time	Sub-System	COMMENTS	Initials	Action by
1830.		Shift Handover to L.L.		
1837.		Q. + N problem on slaveft, cleared later and unable to be reproduced.	(e)	
2100		PCM sig card N ^o 2. Green. 9. Ops advised	(e)	
2118 2118		Press Conference. Recorded		
2143	USB	Misc wave noise filter traced to noise source suspected system - fix on site - fault finding in progress \overline{ST}		
0015		Start SRT Phase 1 TEC - 3	(e)	
0020		Start A/G testing		
0027		A/G testing complete.		
0143		All COST testing complete except PCM & UDS 4/L		
0159		All timing checks are complete.		
0151		Cost PCM commenced		
0242		Ø3 Uplink testing completed to seq 10.		
0300		Continue seq 11		
0330		Phase 3 complete		
0346		Other checks. complete. + P&FS		
0418		FE600 checks in progress.		
0420		All lines configured for 1/F		
0423		Redr cals complete		
0440		All systems ready for 1/F.		

OPERATIONS LOG

MISSION/TEST

DAY 118

DATE 27/APR 72

72

NCG 741

TEC # 3

OPS-2

D/T	Sub-System	COMMENTS	Initials	Action by
0448		G'OPS conf.	PJS	
0445		Start cmd 1/F		
0452		Start TM cadfiss 8-16, 456		
0448		cmd 1/F GO.		
0458		Cadfiss TM is GO.		
0510		Start A/G testing mark - 9.9 f 2525 Space. - 10.8 f 2476		
		Keys ✓ D/L esm - 6		
0513		R + Mod. esm Syst 3		
0545		PBK RT CSM code 1 before AOS (116/117) CTE 234:03:00 → 234:31:00		
0551		Dump Nr 133 at GDS.		
0554		Decom lock HBR PM - 125 FM-110		
0557		Mode 12 D/L PM - 107 FM-102		
0600		Loss mode 12 below threshold.		
0603		Play back on line		
0606		Use decom 4 for R/T monitor of upcoming dump.		
0607		LOS CSM / AOS.		
0611		Dump # 134 AOS Mode 11		
0612		Decom 4 back to R/T config		
		234 11 55 CTE LOS (threshold dth)		
0616		165 ^{KHz} 300 KHz SM4 frequency shifts at least 20KHz on these subcarriers during R/T dump. reported to TIC (this was probably GDS problem) We saw it on the spectrum analyzer.		
0630		The PBK data data is still missing on both prime & alt tracks		
0624		234 22 51 → LBR 234: 23: 45 → HBR		

OPERATIONS LOG

MISSION/TEST

DAY 118

DATE 27 APR 72

73

NCG 741 TEC-3

OPS-2

Dr Time	Sub-System	COMMENTS	Initials	Action by
0626		Prime csm PM 102 FM 100	BLS	
0627		Dump # 135 LOS mode 11		
0632		PBK complete.		
0633		Monitor SM4 in R/T.		
0635		PBK sin 1 OE 210:35:00 (TEC-2) set up 210:55:00 + TPO on all 3 decans.		
0634		LOSS dump # 135		
0643		LOS/AOS csm PM-105 FM-100		
0645		FM mode 12 D/L.		
0646		Dump # 136 Mode 11 Lock.		
0648		PBK ready 20 mins 14/6 (10 mins) change.		
0653		LOS of dump mod.		
0710		LOS/AOS Mode 12		
0704		Dump # 137 Mode 11 Lock.		
0711		End of dump 136.		
0720		LOS/AOS csm		
0720		FM mode 12 lock.		
0722		Dump 138 Mode 11 lock.		
0727		Stop PBK tape when valid data. CTE was 210:47:11 valid data start 210:50:42 SM6 start. 1/2 min left.		
0729		Loss of dump # 138 mode 12 D/L.		
0738		LOS/AOS FM-105 FM-101		
0740		Dump nr. 139 lock mode 11		
0743		210:50:32 SM6 Start tape cued for PBK. 210:40:21 start loss all links		
0748		Mode 12 D/L loss of dump 139.		
0755		Stop playbacks and reconfig for RT.		
05856		lock on mode 11 dump #140	BLS	
0800		WF 112		
0806		Mode 12 D/L loss of dump 140		
0817		lock on mode 11 dump #141		

MISSION/TEST

74

NCG 741

TEC - 3

DAY 118

DATE 27 APR 72

OPS-2

Date/Time	Sub-System	COMMENTS	Initials	Action by
0818		Low SS FM loss of PCM lock on SM4, SM6 & HBR Dump.		
0824		loss of mode 11 dump → mode 12	BLS	
0834		Dump 142 mode 11 lock.	PopS.	
0836		FM going below thresh.		
0842		Mode 12 D/L lock.		
0851		LOS/AOS		
0853		Dump 143 mode 11 lock.		
0855		LOS/AOS		
0901		Lock mode 12		
0906		CSM H/O VL 5 omni proc.		
0911		Dump 144 mode 11		
0911		TLM CRM H/W malfunction		
0919		Mode 12 D/L lock.		
0920		D omni cmd.		
0928		LOS/AOS		
0930		Dump 145 Mode 11 lock.		
0936		LOS of CSM dump 11		
0939		LOS/AOS.		
0943		cmd H + EOF.		
0946		LOS/AOS		
0948		Dump 146 Mode 11 lock.		
0956		loss of dump mod 146.		
1004		LOS/AOS.		
1010		Dump 147 Mode 11 lock Delayed ?		
1009		Prime to break track on CSM & config for FLSEP		
1015		LOS/AOS.		
1020		Alert # TLM c/o OK in data.		
1022		LOS/AOS.		
1025		Dump 147 Mode 11 lock.		
1027		* Freq. shift on on the SM4 165 & 300 kHz subcarriers seen during dump about 2 sec. also at 1030		