

SAO-HRC-LOG-97-277  
DR# SCM10  
Data Type: 3

HRC-500

**HIGH RESOLUTION CAMERA (HRC)**

**LOG BOOK**

Prepared in accordance with DR# SCM10

VOLIX

Prepared for:

George C. Marshall Space Flight Center  
National Aeronautics and Space Administration  
Marshall Space Flight Center, AL 35812

Smithsonian Astrophysical Observatory  
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The Smithsonian Astrophysical Observatory  
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LIFE HISTORY

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NO.	SUBJECT	DATE	TEST DOCUMENT NUMBER/TEST DESCRIPTION/NATURE & DESCRIPTION OF MALFUNCTIONS/SERIAL NUMBER OF REMOVED OR REPLACED PARTS/MODIFICATIONS/ADJUSTMENTS/REPAIRS/MAINTENANCE/SHIPPED/RECEIVED/ENVIRONMENT/ETC.	START	STOP	TOTAL TIME	CUM. TOTAL	STAMP OR INITIAL
2570	Hrc	243	RAN HRC FUNCTIONAL TEST PNL SURG-10-J 5.9.1	1003				
	FUNC.TEST	OFF SAO-HRC-TP-28-319.						GIA
2571	HRC-S	243	TURNED ON/OFF HRC-S HIPS USING SD 0101	1443				GA
	TURN-ON	AND SDO 0100 WITHOUT DISABLING CURRENT LIMIT,						KD
		DONE ON B. SIDE : 10 TRIALS - ALL SUCCESSFUL						
2572	⑨ 10/10	244	LNS OF PHASE 9 ! START OF PHASE 10	0142				
2573	HRC-S	244	RAN HRC-S TURN-ON TESTS ON SIDE B OF	0520				
	TURN-ON	HRC ( PNL SIDE A ) PNL SURGION 5.10						GIA
2574	"	244	SWITCHED TO A-SIDE TO RUN HRC-S HIPS TURN ON 1606					
		RD 51 TURN-ONS SPACED ~ 2 min APART - ALL SUCCESSFUL						RC
2575	TURN-OFF	244	HRC POWERED DOWN PER REQUEST OF TE FOR TRANSITIONS TO AMBIENT - 5.11 PHASE 16.0	1937				RC
2576	TEMPS	244	TURNED ON SIDE A TO MEASURE TEMPS - INITIALLY POWER-DOWN	23:15				RC
2577	HRC DOOR	245	CHAMBER ROUGHNESS COAT-UP VENTED. POSITIONED UP HRC TO 1708					
	CLOSE	CLOSE DOOR PNL SURGION 5.12. HRC OFF.						GIA
2578	LID DOWN	250928	CONTROLLED T/V CHAMBER LID					GIA
2579	GAS SYS	250928	PROCONNNECTING GAS SYSTEM TO HRC.					SKA

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2580	GAS Sys	3 Sept 98	GAS Sys: G25 / 10 psig - " 0.0 " reading. (Post 15im bagging - 1st bag)	07:05	07:10	5	2
2581	"	3 Sept 98	Disconnect Gas Sys to conduct depress. Test of gas module - with 10:30 10 ft Gas Gauge Readings → > 0.0 + psig → 8 ft line discon,	10:32		10:32	
						10:33 1/2	
						10:35 1/2	
						10:40	
						10:47	
						11:00	
						11:15	
						11:17	
						11:18	
						11:18 1/2	
2581	GAS Sys.	3 Sept 98	Disconnected Gas Sys./8 ft. Line @ M4 THV pit for 15im lift. To Transporter; G25 / 10 ± 0.0 " prior to discon.	16:00		16:00	
2582	GAS Sys.	3 Sept 98	Reconnected Gas Sys after 15im transporter bagging G25 / 10 ± 0.0 " ; transported to 10ft line	16:00	18:00	2 hours	
2583	GAS Sys	4 Sept 98	Reconnected REACT. by TRW - off	06:30		06:30	
2584	GAS Sys	4 Sept 98	Disconnected for gas sys. wrg verif. on TRW transport assy	3:50		3:50	
			Reconnected - 0.25 psig			4:10	
2585	GAS Sys	5 Sept 98	Gas sys disconnected & reconnected to 10ft tower line	06:35	06:40	5 hours	

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NO.	SUBJECT	START	STOP
2596	CONTINUOUS TESTING	0125	
	CONTINUOUS TESTING OF CAT 2 TESTING	0543	
	COTTERING CAT 2 TESTING	0543	GKA
	5.5-2 WATER RUN.		GKA
2597	GAS SYSTEM TEST	0543 / 0545 SIN LITTLE CLOUD TO 10992	GKA
2598	SIN CLOCK	0040 PDT	
	TO SYNCHRONIZE WITH START OF TEST AT 0100 PDT		
2599	ENHANCED TEST	0321 PDT	
	SIN UP EG50 & TURNED ON HPC DUE SAD-HPC TP - 98 - 322 RULIA SURGE WINS 5.1 : 5.2 YEDU COUNTER NOT RESET ON TIME (~ 2 YRS LATER). SINCE AS PER PROCEDURE PAGE 5.2 - 3 FOL CONCENTRATION OF PERSON VCAU WHICH WAS RESET TIME.		GKA
	19 SEP 98 TEST RECOMMENDED DURING THE NIGHT: TUM WEST FOR ~ 2 HOURS. RESTAURANT TUM'S AND UNVS CVA TESTS UP IN MANHATTAN. MANHATTAN SINCE OCC. IN MCF-HV-OSS. AND AFTER HV RAMP	10500 PDT	
			GKA
			GKA
			GKA

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2595	Cont'd	30 SEP 98	Salt Occ. N-MCP-HV-055. and To Set HRE-J						
		HV STOPS TO ZONE. SHOULD NOT HAVE BEEN							
		@ Y2 VOLTAGE STATES (RUSF TRW TRS 27)	0329 PST				CHM		
30 SEP 98	SALT OCC. S-MCP-HV-055. and To Set HRE-S	HV STOPS TO ZONE AFTER CONTINUATION OF SCS 90							
		HVCS HV RAMP UP DRASTICALLY IN ACTIVATION BY							
		DAVY AND IN CHANGING FROM HRE-J TO HRE-S							
30 SEP 98	SALT FIRE AGAIN AFTER HRE-S HV WENT UP TO 1/2	1913 PST							
		LEVEL WITHOUT ANY KNOWN CAUSE (RUSF TRS 32)	2122 PST				CHM		
30 SEP 98	TEST COMPRESSED	2358 PST							
2600	GAS SYS 10-4-98	TANK PRESSURE AT 6000 PST, FLOW RATE WAS	0.800	0.815					
		AT 0.051 PST. TANK REMOVED AT 8:15 AM							
2601	GAS SYS 10-4-98	TANK REPLIED AT 1400 PST AND RETURNED TO	0.955	10:10					
		GAS SYSTEM AT 9:55AM. READINGS NOW AS							
		GAS SYSTEM ARE 1400, 10, 0.51							
2602	GAS SYS 10-5	GAS SYSTEM CHECKED FROM 10-5							
2603	" "	10-6					W.W.		
2604	" "	10-7					W.W.		
2605	" "	10-8					W.W.		
2606	" "	10-9					W.W.		
2607	" "	10-10					W.W.		

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			START	STOP	TOTAL TIME	CUM. TOTAL	
			RUNNING TIME/OTHER (HOURS AND MINUTES)				
2612	GAS SYSTEM 12-19-98	S/C NOT moved AS YET GAS SYSTEM Check Results TANK PT 1225 PST	6:30 AM	7:00 AM	0:30	W.W.	7 50
2613	12-20-98	Regulator @ 10 PST Flow Rate 0.6 PST					
2614	12-21-98	S/C moved out of VAS, placed on FUS Adapter, GAS SYSTEM Readings same AS 12-19 ENTRY. GAS LINE WAS NOT DISCONNECTED FOR this move.	10 AM	5 PM	4:30	W.W.	
2615	12-22-98	S/C ROTATED FOR BATTERY REMOVAL GAS System Checks same as above	8:45 AM	9:00 AM	15	W.W.	
2616	12-22-98	S/C ROTATED BACK TO ORIGINAL POSITION GAS SYSTEM SAME AS ABOVE.	10:00 AM	10:30 AM	30	W.W.	
2617	1-09-99	GAS SYSTEM CHECK, NO KINKS IN LINE, checked to top of VAS, Readings AS to Vans TANK @ 1200 PST Regulation @ 10 PST Flow Rate @ 0.55 PST	9:00 AM	9:30 AM	30	W.W.	

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2618	1/8/99	Running	SAO - HRC - TP-98-315 HRC - KSC Functional	11:44	13:30			QC	8	50
			START TIME 1998-08-19 44 GMT							
2619			Run sections 1 & 2							
	1/8/99	Run	second section of test : sections 3 & 4	00:30	02:30			QC		
2620	1/10/99	GAS System Check	OK	8:45 AM	9:00 AM					
2621	1/10/99	"	" OK	9:00	9:30			AM		
2622	1/11/99	"	" OK	9:30	10:30			AM		
2623	1/11/99	"	01C 1200PSI 10kg 0:55	11:45 AM	12:30 PM			TP		
2624	1/11/99	"	" "	11:	11:			AM		
2625	1/11/99	"	" "	11:	11:			AM		
2626	1/16/99	"	" "	11:	11:			AM		
2627	1/12/99	"	" "	11:	11:			AM		
2628	1/25/99	"	" "	11:	11:			AM		
2629	1/26/99	GAS System Re - Route Line from inside Bag	to outside bag - System disconnected for					AM		
			1:35 min	Re - connected And Roving ok	10: PM			1:35 PM		
2630	1/27/99	GAS System D is connected for Assy into	H/F vertically mounted & Re-connected Roving	7:00 AM	7:00 AM			AM		
			ok Disconnected for less than 2 hrs.					AM		
2631	1/28/99	GAS Cr. 1200PSI 10 sec 0.5 Flow		7:30 AM	8:30 AM			AM		

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NO.	SUBJECT				
2632	GAS SYS	1 FEB 99	GAS SYSTEM : TANK ≤ 1200 PSI REGULATOR 9.5 PSI, WILSS GAUGE 0.45 PSI (FROM TRAIL VIA RAX)		
2633	"	2 FEB 99	GAS SYSTEM : TANK ≤ 1200 PSI REGULATOR 9.5 PSI, WILSS GAUGE 0.5 - 0.52 (FROM TRAIL VIA TURCON)		
2634	"	3 FEB 99	CHURKON GAS SYSTEM SHOWING AFTER SCCTS WAS OPENED AFTER BEING PRESSURED TO APPROX 5 IN H <sub>2</sub> O . TANK & REGULATOR READINGS NORMAL, WILSS GAUGE 0.58 OR GRANITE . THIS WOULD BE EXPECTED DUE TO GAS SYSTEM RESPONSE TO INCREASING AMBIENT PRESSURES W/ ANY SIGNIFICANT TIME TO RECORD AFTER SCCTS WAS OPENED . (BY TURCON FROM TRAIL)		
2365	TRANS.	4 FEB 99	ON FEB 4 SCCTS WAS TRANSPORTED TO LAX THEN TO KSC, ON FEB 5 THE SCCTS WAS MOVED FROM KSC TO KSC		
2366	GAS Sys.	6 FEB 99	ON SAT AFT. 2 3:30 PM WE WERE ALLOWED ACCESS TO THE INSIDE OF THE SCCTS TO VIEW OUR GAS SYSTEM READINGS WERE AS FOLLOWS: TANK 1175 PSI Reca 9.5 PSI Focal 0.7 PSI		
					W.M.

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2367	GAS Sys	7 Feb 99 GAS System ck @ white line in VPE				
2368	" "	TANK = 1175 Rec = 9.5 Flow = 0.45 PST	9:00 AM	11:30 AM	2:30	W. M.
2369	" "	8 Feb 99 GAS Sys ck 1175, 9.5, 0.45 PST	3:00 PM	3:30 PM	30	W. M.
2370	" "	" " " " PST	9:00 AM	9:30 AM	30	W. M.
		S/C moved from HORIZONTAL position on H/F				
		to VERTICAL position on H/F GAS system				
		Check After Moved to VERTICAL position				
		WAS: 1175, 9.5 at 0.5 PST	11:00 AM	12:00 PM	1:00	W. M.
2371	" "	11 Feb 99 GAS SYSTEM ck @ 9:15 AM	1175, 9.5, 0.5, PST	9:45 AM	9:45 AM	
2372	" "	12 Feb 99 GAS System ck 1175, 9.5, 0.55 PST	9:00	9:30 AM	30	W. M.
2373	" "	13 Feb 99 S/C was moved from H/F TO B/F. After moving & Securing to B/F S/C was rotated				
		90° to position for removal of II. GAS				
		System was moved however never disconnected				
		during these moves still @ 1175, 9.5, 0.55 PST	7:00 AM	11:30 AM	4:30	W. M.
		lowering of panel to remove II. Activity	7:30 AM	11:30 AM	1:00	W. M.
		going on. GAS System IN SAFE AREA READINGS				
2374	" "	14 Feb 99 Age: 1175, 9.5, 0.50 PST				
2375	" "	15 Feb 99 GAS System Readiness 1175, 9.5, 0.5 PST	1:30 PM	2:00 PM	30	W. M.
2376	" "	9 Mar 99 GAS System Readings prior to Disconnecting 545 AM				
		1150, 9.5, 0.6 PST , S/C was disconnected				

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cont'		3/9/99	For GAS Removal AT 8:05 AM Then Re-connected AT 10:14 AM. Flow Readings Changed From 0.6 PSF to 0.5 PSF when Re-connecting. *Gas line will remain inside gas cabinet until bag is returned to SPC.						
2377	GAS Sys	3/10/99					W.W.		
2378	GAS Sys	3/11/99	GAS Sys CLK 11:50, 9.5, 0.6 PSF " " " 11:30, 9.5, 0.5 PSF	10:30 AM	10:15 AM				
2379	GASSYS	3/12/99	GAT valves were positioned such that the Gas line needed to be disconnected prior to re-installing the bag and moving SPC from its old position. (Ref comment # 2376) *	8:45 AM	8:55 AM				
2380	GAS Sys	3/15/99	Prior to disconnecting the flow was 20.5 PSI After re-connecting the flow remained the same so the Sys #'s Are 11:25, 9.5 & 0.5 PSF line was only off for 22 5 min. Test entry into the log book was made for this change in procedure.	10:10 AM	11:45 AM				
2381	GAS Sys	3/16/99	10 AM 10:15 AM Regulator at 9.5 flow rate was 0.5 PSF GAS Sys checked at 10:15 TANK @ 11:25 Regulator @ (8.8) flow was 0.4	10:15 AM	10:15 AM				

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2381 (cont)		3/16/99	Flow rate gained tree the day up to 0.48 Reg. still @ 8.8			3:00 AM		W.M.
2382 Gas ck		3/17/99	Flow rate @ 0.52, Reg. @ 9.0 tank 1125	9:00 AM		9:10 AM		W.M.
2383 Bottleck		3/17/99	H/15 - 1725 PST					
2384 START 0°			H/16 - 1950 PST	10:00 AM				W.M.
2384 DIRECT TEST		3/17/99	PERFORMED STARTED HERE POSITION OF OBSERVATORY STATE OF THE MALTHER TEST PROCEDURE 5A0-HCC-TP-98-335	10:00 PM				
2385 Gas ck		3/18/99	GAS Sys 2 1125, 9.0, 0.55 PST	7:30 AM		7:40 AM	0:320	SKA W.M.
2386 Gas ck		3/18/99	GAS Sys 2 1125, 9.0, 0.55 PST	7:50 AM		7:55 AM		W.M.
2387 Gas ck		3/19/99	GAS Sys 2 1125, 9.0, 0.55 PST	8:00 AM		8:15 AM		W.M.
2388 GAS ck		3/19/99	GAS Sys 2 1125, 9.0, 0.55 PST	9:00 AM		9:30 AM		W.M.
2389 GAS ck		3/20/99	" " " " 0.6 PST	9:30 AM		9:45 AM		W.M.
2390 Gas ck		3/21/99	" " " " 0.55 PST	10:00 AM		10:15 AM		W.M.
2391 Gas ck		3/21/99	S/C moved 90° and into cell	9:45 AM		10:45 AM		W.M.
2392 Gas ck		4-3-99	GAS Sys 2 1125, 9.0, 0.55 PST	7:00 AM		11:00 AM		W.M.
			S/C lifted from BIE TO IOT, system moved					
			GAS Sys 2 1125, 9.0, 0.55 PST (Not disconnected)					

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2393	Gas System	5/20/99	N2 System disconnected from gas for line test. F.t. check to The TUS forced ASCE Platform. System was transported to Hangar AM at the Canaveral Air Force Station and mated to the fwd. HSE. N2 system uses 2 diagonal bolts to secure it to Platform. N2 system was reconnected to Instrument 10061 line at 12:00 noon today duration 2 1/2 hrs	9:30 <sup>AM</sup>	11:30		2f
2394	"	5/23/99	N2 system check: R61 = 1050 / 9.5 - 9.75 psig G1 = 0.6				
2395	"	5/24/99	" " "				2f
2396	"	5/27/99	" " "				2f
2397	"	6/1/99	Launch of STS-96 (1:49 am)				
2398	"	6/2/99	GAS System 1050, 8.5, 0.5 PSI				WWT
2399	"	6/3/99	GAS System Before disconnecting the TUS set mate 1050, 8.5, 0.5 PSI. Disconnected at 7:30 pm & re-connected at 9:30 PM WAITED 1 hour then readings were 1050, 8.5, 0.5 5pm 10.45 psi				10.45 psi
			GAS System moved to TUS BKT. Secured w/ 2 80/15 (CONT)				

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				TOTAL TIME	CUM. TOTAL
2399 (CONT)	6/3/99		Assembled OK Readings 1050, 8:5, 0.5 PSI	9:30 AM	10:00 AM
2400	GAS Sys CLK	6/4/99	Readings 1050, 8:5, 0.5 PSI	10:50 AM	11:30 AM
2401	" "	6/5/99	" " "	11:30 AM	12:45 PM
2402	" "	6/7/99	" " "	1:30 PM	1:45 PM
2403	" "	6/9/99	" " "	1:30 PM	1:30 PM
2404	" "	6/9/99	Hoses checked @ 730 AM Level ok.	8:30 AM	9:45 AM
2405	" "	6/15/99	Readings 1050, 8:5, 0.45 PSI	3 PM	3:15 PM
2406	" "	6/16/99	Readings 1050, 8:5, 0.45 PSI	2:00 PM	2:15 PM
2407	" "	6/16/99	GAS System was re located to its ship to pad position mounted to plate on its frame	9:15 AM	9:45 AM
			2 opposite corner bolts secured, line was given a smooth pull and secured at time.		
			Final readings prior to going to pad was		
2408		6/25/99	1050, 8:5, 0.45 PSI	10:00 AM	10:45 AM
			was checked at 11:30 AM. Pressure is		
2409		6/26/99	Gas System disconnected for 12 20 min's Moved	11:30 AM	12:00 PM
			to level 5 in sec. Gas line Reverted from B4P		
			Team to Bay Team meeting Block. Pressure was 1025/9:0/.45 after Reconnection		

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2410	Gas Sys	6/27/99 Gas System ok, in its new Level 5 location, 1025, 9.0, +48 Line reading looks ok.				W.M.JP
2411	N <sub>2</sub> Syst.	7/16/99 N <sub>2</sub> System checked after 20 min duration at The pay load change-out done. AYAT is Fully mated to Shuttle. N <sub>2</sub> System Pressure AT 1000/1020, 9.0, +6 psi	11:00 AM	11:15 AM	15	
2412	N <sub>2</sub> Syst.	7/17/99 Final disconnection of the HRC N <sub>2</sub> Supply Assembly. Close out for software o per SAO-HRC-P-98-314 REV A, the HRC Pre-Launch Close-out Activities of KSC. Close out was performed with <sup>out</sup> no deviations of the procedure except for the use of an additional tether attached to the 90° pipe assembly	12:30 PM	1:00 AM	30	
2413	Payload ops	7/19/99 Payload bay doors closed at 18:28. Dry air flow in the cargo prevented doors from closing at first. Flow rates were changed to accommodate closure. See next page.			6:28 pm	JP

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2414	Payload ops	6/17/99	AT 13:20 The purge rate in the PLB was set to 230 lbs (+/- 11) of dry air. This prevented the PLB doors to close. A request was made to reduce the purge rate to 140 - 170 lbs/min.	1:20pm	-	-	
2415	Payload ops	6/17/99	PTC gives permission to decrease the dry air purge rate in the PLB to 140 lbs/min for 15 min.	-	-	-	
2416	Payload ops	6/19/99	© 18:28 The PLB doors were latched and the dry air purge rate was reduced to 230 lbs/min.	6:30pm			
2417	Payload ops	6/19/99	BEGIN N <sub>2</sub> Purge of CHARG BAY. Launch aborted and PLB is returned to dry air purge at 7:45 AM on 7/20/99			1:52AM	
2418	Payload ops	7/20/99	PLB is switched back to N <sub>2</sub> Purge AT 1:52 AM				

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