# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

# MANNED SPACECRAFT SYSTEM

Minutes of Meeting ASTP

CSM 111 Critical Design Review

DM-DS Preliminary Design Review

November 8, 9, 10, 1972

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# Minutes of Meeting

# ASTP CSM 111 Critical Design Review DM-DS Preliminary Design Review

November 8, 9, 10, 1972

The ASTP CSM 111 Critical Design Review and DM-DS Preliminary Design Review was held at North American Rockwell Corporation, Downey, California, in the Building 1 Mockup area.

# Purpose

The purpose of this review was to establish a critical design configuration baseline for CSM 111 and a preliminary design configuration for the ASTP Docking Module and Docking System.

# Review Teams

The review teams consisted of the individuals shown in Enclosure A, with Mr. A. Dennett, PD9, as the NASA Review Manager.

# Proceedings

NR presented the documentation referenced in Enclosure B for the teams review and approval plus handout AP72-30, ASTP CSM 111 Critical Design Review, DM-DS Preliminary Design Review.)

The review teams documented their findings in team minutes (Enclosure C) with discussion items identified on Review Item Disposition (RID) forms, Enclosure D. Seventy-eight RID's were presented to the joint NASA/NR pre-board for review. Fifty-nine RID's had action assigned, five were disapproved, four were withdrawn and ten were referred to the board for disposition.

# Board Meeting

The board meeting was convened at 8:30 a.m. PST on November 10, 1972, by the chairman with the members as follows:

Chairman: G. Lunney (NASA) Members: Col. T. P. Stafford Col. D. R. Scott R. Colonna (Pre-Board Chairman) F. Miller R. Burt E. Sievers A. Dennett

- RID 2-5 Common TV Connectors
- Action: See RID 2-8 disposition.

# RID 2-8 Video Connectors for Soyuz J-Box

Actions: 1. The Simplified Video Selection System was approved.

- 2. NR will provide a jumper cable to bypass the video tape recorder.
- 3. MSC will evaluate the need for an amplifier and notify NR by 11-17-72.
- 4. NR to investigate the relocation of switches and monitor jack to a position near the tape recorder.
- 5. The Skylab OWS type TV cable (Microdot single connector) will be implemented.

# RID 3b-3 Protection From Shatterable Material in Docking Module

Action: NR will implement the protection of DM meters by the use of tape.

# RID 3c-1 Stowage List Update

Action: NR to implement the stowage changes per redlined Stowage List furnished to NR.

# RID 4-1 Oxygen Mask Provisions

- Actions: 1. NR will delete QD's and add a shut-off valve for isolating masks except when required.
  - 2. Determine impact on DM panel and mask stowage to implement NASA recommendations.

# RID 4-2 DM Pressure Gauge Accuracy

Action: NR to include the requirement for improved docking module gauge accuracy as part of the proposal for the system changes resulting from the Soyuz flying at  $520 \pm 30$  mm Hg.

# RID 6-5 Com/TV Drag Thru Cable

Action: Disapproved - NASA to consider providing longer cable.

# RID 17-1 N2/02 Tank Burst Discs

Action: NR will provide caps to cover the tank burst discs. The caps will be installed after tank servicing.

RID 20-3 Baseline Thermal Design

- Actions: 1. NR will provide a completion schedule for a thermal analysis by November 17, 1972.
  - 2. NR will implement the changes to the thermal design timeline resulting from the October, 1972 USA/USSR Meeting.

# RID 21-2 Changes to Baseline Measurement List

Actions: 1. NASA to provide confirmation of measurement list changes by November 10, 1972.

ACTION COMPLETED - Measurement List attached to RID was confirmed.

2. NR will implement the measurement list changes as presented.

Special NR Presentation on Docking System Indications (ENCLOSURE E)

1. Load cells to indicate active hooks closed.

NR will provide a cost and schedule proposal for the use of load cells to indicate that structural latches are engaged. Due November 22, 1972.

- 2. Read gearbox motor transfer switches. NR will provide a cost and schedule proposal for adding gearbox motor transfer switches to indicate that the active hook is open and that the passive hook is reset. Due November 22, 1972.
- 3. NR to provide indication on Systems A and B for the following:
  - a. Guide Ring Capture
  - b. Guide Ring Retract
  - c. Structural Interfaces Mated
  - d. Body Latches Out and Locked
  - e. Guide Ring Extend

- 4. Contingency docking capability will be provided. Baseline indications will be retained.
- NOTES: The NR Handout, AP72-30, is available for review from the NASA Review Manager, Mr. A. Dennett, or from Mr. P. Masucci, of NR.

The stowage list mentioned in RID 3c-1 is available upon request from Mr. C. Perner, MSC, or Mr. K. Shaw, NR.

# ENCLOSURE A

ASTP CSM 111 CDR/DM-DS PDR REVIEW TEAMS

NO.	NAME	NR-CAPTAIN	NASA-CAPTAIN
1	MISSION REQUIREMENTS	B. Johnson	R. Ward
2	TELECOMMUNICATIONS	C. Zemenick	P. Westmorland
3a	CREW EQUIPMENT	G. Thies	F. McAllister
3b	DISPLAYS & CONTROLS	H. Horii	A. Olson
3c	STOWAGE	K. Shaw	C. Perner
4	ECLSS	J. Ross	L. Bell
5	CRYOGENICS	C. Bouman	H. White
6	ELECTRICAL POWER SYSTEM	H. Horii	W. Speier
7	GUIDANCE & CONTROL	C. Conrad	R. Ward
9	MATERIALS & PROCESSES	M. Clancy	M. Steinthal
10	PROPULSION	E. French	W. White
lla	STRUCTURES	D. Keith	G. Sanders
11b	MECHANISMS	G. Thies	R. White
11c	ORDNANCE	C. Lowry	H. White



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# ASTP CSM 111 CDR/DM-DS PDR REVIEW TEAMS (CONT)

NO.	TEAM	NR-CAPTAIN	NASA-CAPTAIN
12	DOCKING SYSTEMS	C. Lowry	L. Williams
13	GROUND TESTING	J. Carney	R. Clickner
14	MOCKUPS	J. Carney	S. Nassif
15	TEST & CHECKOUT	E. Dale	R. Clickner
16	RELIABILITY	J. Stungis	E. Sievers
17	SAFETY	J. Proctor	O. Lindsay
18	SPECIFICATIONS	J. Maiocchi	H. Scott
19	QUALITY	E. Kindelberger	L. Greenly
20	THERMAL	P. Merhoff	T. Taylor
21	INSTRUMENTATION	C. Zemenick	F. Rotramel

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ENCLOSURE B

# ASTP CSH 111 CDR/DH-DS PDR

# DRAWINGS AND SPECIFICATIONS FOR REVIEW

- 1. DRAWING LIST INCLUDES ALL PROJECTED ASTP LAYOUTS/DRAWINGS.
- 2. ALL DRAWINGS/SPECIFICATIONS TRANSMITTED TO MASA FOR REVIEW ARE NOTED.
- 3. TEAM CAPTAINS IDENTIFIED ON EACH TEAM DATA PACKAGE.

TEAN NO. 1 MISSION REQUIR	<u>NASA</u> EMENTS R. WARD EX	<u>TEAH</u> . 3731	CAPTADS	B. JOHNSON	
TAN . /SPEC NO.	TITLE ASTP FLT. MEAS. REVIEW	ł	<u>% COHP</u> . 100	REVIEWED	REMARKS ASOCAR DOCUMENT

TEAM NO. 2 TELECOMMUNICATIONS	<u>MASA</u> P. WESTMORELAND E	<u>M CAPTAINS</u> X. 3205	NE C. ZER	TENICK
<u>540./SPEC NO.</u> SK-696-504-11(C)	TITLE SINCLE LINE FUNCTIONAL	<u>\$ COMP</u> . 100	REV LEVED	PEWARKS
SK-V34-581-1	VHF/FM SYS	60	NO	
SK-V34-581-2(A)	CCU STATIONS (REMOTE)	100	NO	
SK-V34-581-3	SPEAKER BOX	100	NO	
SK-V34-581-6(D)	VIDEO RCDR & CONTROLS	100	YDES	
SK-V34-581-8(A)	O'ANI-ANT SEL	100	NO	

JC JC STOWAGE	NASA C. PERNER EX.	<u>TEAN</u> 4171	CAPTAINS	<u>NR</u> K. Sha	W
DAG./SPEC NO. V36-780025 A EOH 80431	TITLE SNAP & CUSHION INSTL.		<u>\$ COMP</u> . 100	<u>PEVIE:ED</u> YES	PERADES IN DATA PACK
V36-601104* EOM 804029	STUD MOUNT		100	YES	
V36-782040* EOM 804000	CUSHION - R13		100	TES	
0 <b>V36-7</b> 8004* EOK 804029	SNAP PLATE		<b>7</b> 00	YES	
V36-784007* EOM 803980	CUSHION - FILTER QD WMS		100	YES	
V36-785009* Eom 803979	CUSHION - COAS FILTER		100	YES	
V36-785015* EOM 803980	CUSHION -U3		100	YFS	
V36-788004* EOM 803980	CUSHION URINE FILTER		100	TES	an a
V56-786764* EOM 803980	CUSHION-U3		100	YES	
<b>V36-7</b> 8760 <b>3</b>	CONTR - VOL ALL	^	100	YES	IN DATA PACK
V36-7878602	CUSHION - TV MONITOR		100	YES	IN DATA PACK

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	TEAN EO. 4 FCISS	MASA L. BELL	<u>TEAH</u> EX. 4934	CAPTAINS	J. RC	SS S
¥	Not included in data	pack.				
¥	ENG./SPEC NO. V52-610001	THERMO & ATMOS. COMPLETE - AST	Control IP	<u>¢ carp</u> . 0	<u>REVIEWED</u> NO	ERMARKS
¥	V52-610003	ATMOS, CONTROL	INSTL.	Q	NO	

TURE ASSY.

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F V52-610038

NO

TEAN NO. 3A	HASA F. M. ALLISTER F	TEAN CAPTAINS	G. THIES	
CUTH FROM				
DAG./SPEC NO.	TITLE	& COMP.	REVIENED.	REMARKS
V52-601005	WATER SYSTEM ASSY	O	NO	-
V52-601006	WATER SYSTEM CONTAINED	0	NO	
V52-601010	EQUIPMENT TRANSIT CON	CAINER O	NO	erang di 👎
(IS 0849)	LAYOUT	80		
V52-601015	02 MASK CONTAINER	0	NO 🔛	કાર છે. 🖣
(IS 0851)	LAYOUT	50	<b>-</b>	
V52-601020	RESTRAINT ASSY.	Ö	YES	
(IS 0850)	LAYOUT	100		
<i>B</i> 1				
TEAN NO.		TEAH CAPTAINS		

TEAN NO.TEAN CAPTAINS3bNASADISPLAYS & CONTROLSA. OLSON EX. 3171H. HORII

THE SPEC NO. TITLE SCONP. REVIEWED REMARKS

TEAMS 35 AND 6 HAVE BEEN COMBINED. SEE TEAM 6 LIST OF DRAWINGS FOR REFERENCE TO D&C DRAWINGS.

# TRAH NO.

4 ECISS

(continued)

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×	DAG./SPEC. NO.	TITLE	Z COMP.	REVIEWED	REMARKS
*	V52-610002	ATHOSPHERIC CONTROL SYSTEM			
	ME286-0034-0002	02 & N2 FILTER	90	NO	
	HE284-0359-0002	02 REGULATOR	95	NO	and the second sec
	ME284-0150-0031	02 PURGE VALVE	90	NO	
¥	HE273-0075-2004	QD O2 MASK, PANEL	90	NO	
¥	HE273-0074-9004	QD 02 FACE MASK	90		
	ME265-0017-0006	CAP, QD	90	NO	
	HE449-0129-0001	02 FLOW TRANSDUCER	90	NO	
*	NE284-0370-0001	REGULATOR, EMERG.	90	NO	- 
*	HE284-0149-0051 & 00	61 CABIN RELIEF VALVE	95	NO	
	HE284-0147-0071	CABIN RELIEF VALVE	95	NO	
	MZ284-0360-0001	N2 & 02 5-0 VLV.	95	NO	
	NE273-0079-0012	ORIFICE	90	NO	
	ME289-0041-0001 & -0	002 P GAUGE	95	NO	1 1 - 17 p 1 - Danado et d'artestada - Schwertz artes
	HE449-0121-0001	TELP. TRANSDUCER	95	NO	
	HE449-0045-0041	ABSOLUTE PRESS. TRANSDUCER	95	NO	
	ME449-0129-0001	02 FLOW TRANSDUCER	95	NO	
	ME492-0010-0031	FAN	95	NO	
*	NE284-0383-0001	TUNNEL RELIEF VALV.	0	NO	

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TEAM NO. 4 ECISS (contin	ued)			•
D+G/SPEC NO. V52-610051	TITLE	& COMP.	REVIEWED NO	REMARKS
V52-610011	TFE	75	NO	
V52-610013	DUCT CPRV	٥	NO	
V52-610014	ORIFICE CPRV	0	NO	4
V52-610025	SUPPORT	0	NO	
V52-610026	ELBOW	90	NO	· 40
V52-610027	BRACKET	75	NO	
V52-610029	THROUGH	0	NO ·	
V52-610030	FITTING	90	NO	
V52-610033	FITTING T.P.	90	NO	
V52-610035	SCREEN OUT	90	NO	
V52-610037	SCREEN & HOUSING ASSY.	90	NO	
V52-610032	LOUVER	90	NO	
V52-610034	SCREEN OUT	90	NO	
¥ v52-610004	ATMOS. CONTROL STORAGE	0	NO	
¥ V52-610017	MODULE - ASSY	0	NO	
* V52-610018	BRACKET	0	NO	
V52-610019	CLAMP SET	90	NO	
+ v52-610020	TUBE ASSY	O	NO	
V52-610021	CLAMP SET	90	NO	· .
V52-610022	ORIFICE ASSY	90	NO	
* \$\$2-610047	CLAMP SET	0	- NO	• • <b>*</b> • •
* V52-610048	MANIPOLED	0	NO	
	TEAP NO. ECISS (contin D+G/SPEC NO. V52-610051 V52-610013 V52-610013 V52-610025 V52-610027 V52-610027 V52-610029 V52-610030 V52-610033 V52-610035 V52-610037 V52-610032 V52-610034 * V52-610004 * V52-610018 V52-610019 * V52-610021 V52-610021 V52-610022 * V52-610047 * V52-610021	TEAP NO.         ECISS (continued)         DWG/SPEC NO.       TITLE         V52-610051       STRAP         V52-610011       TEE         V52-610013       DUCT CPRV         V52-610014       ORIFICE CPRV         V52-610025       SUPPORT         V52-610026       ELBOW         V52-610027       BRACKET         V52-610029       THROUGH         V52-610030       FITTING T.P.         V52-610035       SCREEN OUT         V52-610037       SCREEN OUT         V52-610032       LOUVER         V52-610034       SCREEN OUT         V52-610035       SCREEN OUT         V52-610036       BRACKET         V52-610037       SCREEN OUT         V52-610034       SCREEN OUT         *       V52-610017         V52-610018       BRACKET         V52-610019       CLAMP SET         *       V52-610021       CLAMP SET         V52-610021       CLAMP SET         V52-610022       ORIFICE ASSY         *       V52-610024       NANIPOLED	TEAR NO. ECISS       (continued)         DMR/SPEC NO. V52-610051       TITLE STRAP       2 COMP. 0         V52-610011       TEE       75         V52-610013       DUCT CPRV       0         V52-610014       ORIFICE CPRV       0         V52-610025       SUPPORT       0         V52-610026       ELBOM       90         V52-610027       BRACKET       75         V52-610029       THROUGH       0         V52-610030       FITTING T.P.       90         V52-610033       FITTING T.P.       90         V52-610035       SCREEN OUT       90         V52-610037       SCREEN OUT       90         V52-610034       SCREEN OUT       90         *       V52-610018       BRACKET       0         *       V52-610019       CLAMP SET       90         *       V52-610020       TUBE ASSY       0         V52-610021       CLAMP SET       90         V52-610022	TEAR NO.           A         COINT.         TITLE         S CONT.         NO           V52-610051         STRAP         0         NO           V52-610011         TEE         75         NO           V52-610013         DUCT CPRV         0         NO           V52-610014         ORIFICE CPRV         0         NO           V52-610025         SUPPORT         0         NO           V52-610026         ELBCW         90         NO           V52-610027         BRACKET         75         NO           V52-610029         THROUCH         0         NO           V52-610030         FITTING T.P.         90         NO           V52-610033         FITTING T.P.         90         NO           V52-610035         SCREEN OUT         90         NO           V52-610037         SCREEN OUT         90         NO           V52-610032         LOUVER         90         NO           V52-610034         SCREEN OUT         90         NO           V52-610034         SCREEN OUT         90         NO           V52-610017         MODULE - ASSY         0         NO           V52-610018         BRACKET<

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TEAM NO.

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	ECLSS (conti	nued)			
	DHG/SPEC NO.	TITLE	% COMP.	REVIEWED	REMARKS
*	V52-610049	MANIFOLD	σ	NO	
*	V52-610050	FITTING	O	NO	n Series Series
*	¥52-610005	TUNNEL NO. 1 PRESS. PANEL	0	NO	
*	v52-610016	TUBE ASSY	O	NO	
*	V52-610040	PANEL	0	NO	
*	v52-610041	FITTING	0	NO	
	V52-610039	NOZZLE-VENT	95	NO	
*	V52-610042	PANEL PRESS.	0	NO	
*	V52-610043	PANEL DETAIL	Ō	NO	
	V52610044	GUARD	90	NO	
	V52-61.0045	COVER GUARD	90	NO	
	V52-610046	HINGE	90	NO	
×	V52-610053	ELBOW	G	NO	
*	V52-610054	ELFOW	0	NO	
*	v52-610055	BRACKET	0	NO	
*	V52-610006	TUNNEL NO. 2 INSTL.	0	NO	а —
*	V52-610023	TUBE ASSY	0	NO	
	V52-610039	NOZZLE-VENT	95	NO	
	(Layouts)				
¥	V52-961000 SH2	ATHOS CONT SYS	90	NO	
*	V52-961000 SH3	EXT. TANKS INSTL.	90	NO	
*	V52-961000 SH4	VALVES TUN. NO. 1	90	NO	
X	V52-961000 SH5	VALVES TUN. NO. 2	95	NO	
*	V52-961000 SH6	FAN & LOUVERS	100	NO	

TEAM NO. 4 ECLSS (continued)

	DHG./SPEC. NO.	TITLE	Z COMP.	REVIEWED REMARI	S
¥	V52-610004	GAS STORAGE SYSTEM	* *	20 s 1 3 1 1	
*	ME273-0079-0011	ORIFICE	90	NO	
*	NE251-0009-0001	BURST DISC	80	NO	
	ME284-0187-0011	CHECK VALVE	90	NO	
*	ST2350006 ME0002	QD	0	NO	
	INSTALLATION & CHECK	OUT SPECS	· .		
*	мло201-5940	DIT CHECKOUT SPEC, ECS	٥	NO	
*	MA0201-5941	KSC CHECKOUT SPEC, ECS	• 0	NO	
*	MA0201-5942	ECS REMOVAL & REPL. SPEC	0	NO	
*	NA0301-0051	ECS INSTALLATION SPEC	٥	NO	
	EOM 812079 AGAINST	V37-610102 H	a	NO	
	EOH 812080 ATAINST	V37-610001 C	0	NO	

TEAH NO.	NASA	TEAH	CAPTAINS	ME	
CRYCGENICS	F. PLAUCHE	EX. 3286		C. BOUL	AN
	•				
Dig./SPEC NO.	TITLE		<u>2.0017</u> .	REVIEWED	REMARKS
EOM 673466 AGAINST	V37-454201 F		100	NO	
EOM 673468 AGAINST	V37-454258 NC		100	NO	
FON (72) LO ACATNER			100		
EON O (3409 AGAINDI	v3/~434200 n		100	NO	
EOM 673470 AGAINST	V37-454200 H		100	NO	

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	TEAH NO.	KASA	TEAH CAPTAILS	12	14 14
	ELECTRICAL POWER S (INCLUDING D&C)	YS. W. SPEIER EX.	2557	H. HOR	EI
×	Not included in da	ta pack.			
	FAG. /SPEC NO.	TITLE	E CONT.	REVIEWED	REMARS
*	EO M	EPS SYSTEM SCHEMATIC	95	NO	
	V34-945103	CRYO SYSTEM SCHEPATIC	100	NO	
	V34-945081	RCS SYSTEM SCHEMATIC	90	NO	÷
	V34-945046	SPS SYSTEM SCHEMATIC	100	NO	
	₹34-945049	EDS SYSTEM SCHEMATIC	95	NO	
	V34-945102	ELS/LES SYSTEM SCHEMATIC	95	NO	
	V52-945530	DOCKING SYSTEM SCHEMATIC	C 70	Yes	
	V52-	DM ELECTRICAL SYSTEMS S	CHEM. 80	(CONCEPT ONLY)	
•	V36-976029	D&C CONFIGURATION CONTR	OL 50	TES	
	V36-977111	PANEL 1 SCHEMATIC	100	ю	
•	V36-977112	PANEL 2 SCHEMATIC	85	NO	
	V36-977174	PANEL 274 SCHEMATIC	90	NO	
	V37-945204	SM POWR DISTR POX SCHEM	ATIC 95	NO	14

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# TEAM NO. 6 ELECTRICAL POWER SYS. (continued) (INCLUDING D&C)

	THG./SPEC. NO.	TITLE	COIP.	REVIEWED	REMARKS
(	Layouts) V52-944010	ASTP DOCKING MODULE ELECT. CONNECTOR FEED-THRU (OPER & T/V)	80	NO	
	V52-922010	ASTP DOCKING MODULE ELECT. FEED-THRU, COVER	80	no	s. S. S. S.
	V52-940100	ASTP DOCKING MODULE, EQUIPMENT BAY	40	NO	
	V 52-940400	ASTP C/M D/M ELECT. INTERFACE	60	NO	
	v52-976010	ASTP DOCKING MODULE D&C PANELS	100	NO	
	V56-946202	ASTP C/M TUNNEL AREA	100	NO	
	V36-914001	ASTP VIDEO TAPE RECORDER	50	NO	
	V36-976500	ASTP PANEL 2	100	NO	
	V57-944001	ASTP ELECT. EQUIP. & WIRING INSTL, DOCKING SYS.	80	Ю	
	V52-944005	ASTP APOLLO/SOYUZ ELECT. INTERFACING REQUIREMENTS	100	NO	
	(Drawings) V36-445061	ESI MDC (N/A V36-440031)	100	NO	
	V36-446042	ESI FWD COMP (N/A V36-44,000)	100	NO	
	V37-440701	ESI FWD BHD (N/A V37-440700)	100	NO	
	V37-447303	ESI AFT EHD (N/A V37-440700)	100	NO	
	V37-710501	CAPLE INST - FUEL & OXIDIZER QUAD SEN. COAX (N/A V37-7100	( 100	NO	
	V37-759515	INST. INST. DIS. (N/A V37-40 SYS, FUEL & OXIDIZER	10801) 100	NO	
	V37-440602	ELEC. EQUIP & WIRING (N/A V37-440700) INST. X <sub>C</sub> 20 TO X <sub>B</sub> 354	100	10	

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TEAM HO	<mark>).</mark>	•			
ELECTRI (INCLI	ICAL POWER SYS. (co JDING D&C)	ontinued)	27 - 17 - 14 -		Liter, s
DAG./SI	PEC. NO.	•	% COMP.	REVIEWED	REMARKS
E.O. 's	a 3 - 14				
803072	V37-710418 P V37-710402 P	· · · · ·		NO NO	CHK. & REWORK
803074	V37-750521 B V37-754515 C			NO NO	CHK. & REWORK CHK.
804376	V37-445202 C V37-445203 D V37-424629 A V37-424630 A V57-448050 A V57-448060 A			NO	СНК.
	V57-424629 A V57-424630 A			NO	CHK.
804377	V57-448051 NC V57-448053 NC V57-448063 NC V37-758522 B V57-758522 NC			NO	CHX.
804378	EOPR (LV ENGINE) ANNUNCIATOR			к	
801,380	V37-759870 C			NO	CHK.
808831	V36-716001 G	* 		NO	REL.
808832	V37-451230 н			NO	CHK.
808834	V36-761111 н			NO	CHK.
802835	V16-761204 A V36-761001 D			NO -	CHK.
808861	V57-458260 NC V57-458261 A V57-958262 NC			no No No	СНК. СНК. СНК.

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	TEAN NO	•		÷	•	
	6 ELECTRI (INCL	CAL POWER SYS. UDING D&C)	(continued)			
	DHG./SP	EC. NO.		Z COMP.	REVIEWED	REMARKS
	E.O. 18			• • •		1997 - 19
÷	802863	FQ1-100447 C			NO	CHK.
	809008	V37-451230 H			NO	CHK.
	809010	V56-716103 NC			NO	СНК.
	809011.	V57-448040 A			NO	CHK.
	809012	V57-756530 NC	r f		NO	CHK .
	809013	V34-710010 A	, 		NO	СНК.
·	809014	V36-700001 G			NO	снк.
•	809018	V36-446974 A			NO	CHK.
	809019	V36-446023 NEN		÷	NO	REL.
	809020	V36-446106 NC.			NO	СНК.
	809623	V37-451231 F			NO	CHK.
	810058	V57-710516 NC V57-710517 NC V57-426952 NC V57-448855 NG V57-448851 NC V57-448556 NC			no	CHK.
*	802804	EOPR				al e e e
	808805	EOPR				
	808806	EOPR			•	
	808207	EOPR				
	808808	EOPR			•	
	808816	V37-424631 ·			NO	REL.
	809023	V37-444601 B	-7		NO	СНК.
	808829	V37-758526 A		-	NO	CHK.
	808837	V36-446203 NEW V36-446204 NEW V36-446205 NEW	1. L. I.		NO HO NO	REL. REL. REL.

<u>TEAM NO.</u> 10 PROPULSION	MASA H. WHITE EX. 2161	CAPTAINS	NR E. FR	LENCH
PAG. /SPEC NO.	TITLE	\$ CONP.	REVIEWED	REMARKS
V37-940209	LAYOUT - SPS FUEL AND OX - ASTP (MOD SKYLAB)	100	HO	•
TEAM HO. 11a STRUCTURES	MASA G. SANDERS EX. 2276	CAPTAINS	<del>. Ke</del> D. Ke	ITH
FNG./SPEC NO.	TITLE	5 CONP.	REVIESED	REMIRKS
<b>v36-931661</b>	DES. L/O - FAIRING & BOND-ON REVISIONS, FUD TUNNEL, EI 111	100	NO	
V36-931761	DES. L/O - AFT BULKHEAD FITTING VIDEO TAPE RECORDER	s, 90	NO	
V36-933161 (2 sheets)	DES. L/O - RACK SUPPORT, VIDEO TAPE RECORDER, AFT EQUIPMENT BA	95 Y	NO	
V36-933261	DES. L/O - PANEL 274 SUPPT. STRUCT., Z <sub>c</sub> 4.824 TO Z <sub>c</sub> 21.130, RHEE, AFT	50	NO	· v
V52-930001 (4 sheets)	ASTP STRUCT. ARRANGEMENT (HEAVY SKIN CONCEPT)	80	YES	
V52-931401 (3 sheets)	DOCKING MODULE HATCH LAYOUT	75	TES	1
V52-931641	LAYOUT - DM FWD PULKHEAD, #2	90	TES	÷.
V52-931661 (3 sheets)	LAYOUT - DM EXT. SPACE ALLOC.	70	. YES	
V52-933001 (Sheet 4 ONLY	SYSTERS MODULE STRUCT. LAYOUT	50	YES	
V52-933002	LAYOUT - DM SPACE ALLOC, & EQUI INSTL. (INTERNAL) - CHORDWISE SYSTEMS MODULE	P. 95	YES	· · ·
V52-933011	DES L/O - FIRE EXTINGUISHER SUPPORT PROVISIONS	25	NO	

TEAM NO.

11a STRUCTURES (c	continued)			
TWG/SPFC NO.	TITLE	COMP.	REVIEWED	EEMARRS
V52-310505	RING - DOCKING, TUNNEL NO. 1 DOCKING MODULE FORGING (ASSY OF)	75	NO	8.9 ·
V52-316412 A	BULKHEAD - DOCKING TUNNEL NO. 2 DOCKING MODULE	85	NO	
v52-310401	STRUCTURE - DOCKING MODULE XD 0,000 TO XD 105,000, ASSY OF	90	NO	
v52-310411	PLATE - TUNNEL FEED THRU, DOCKING MODULE PRESSURE	100	NO	RELEASED
V52-310416	PLATE - SEAL, TUNNEL FEED THRU, DOCKING MODULE, PRESS. ASSY OF	100	NO	5. <b></b>
V52-310417	FITTING - TUNNEL FEED THRU, DOCKING MODULE VENT	100	NO	
<b>V52-31</b> 0419	PLATE - TUNNEL FEED THRU, DOCKING MODULE, ASSY OF	100	NO	
V52-310501	WELD ASSY - DOCKING TUNNEL NO. 1., DOCKING MODULE	100	NO	
V52-310507	SKIN - DHOD, XD 0.00 TO XD 14.7: ASSY OF	5 100	NO	
V52-310511	RING - DHOD, XD 14.75	100	NO	
V52-310601	SHELL - DMOD, X <sub>D</sub> 15.75 TO X <sub>D</sub> 105.00, ASSY OF	100	NO	
V52-310602	RING -DHOD, XD 105.00	100	HO	
V52-310652	SHELL - DHOD, XD 14.75 TO XD 105.00	100	NO	RELEASED
V52-316117	VENT - SUBLIMATOR, NONPROPULSION ASSY OF	N 100	NO	RELEASED
V52-316118	SEAL - SUBLIMATOR VENT, NONPROPULSION, ASSY OF	100	NO	RELEASED
V52-316416	SEAL - FWD BULKHEAD	100	NO	RELEASED
V52-316682	TANK - ASTP/ECISS STORAGE SUPPLY	100	NO	
V52-316681	DOME - ASTP/ECISS	100	NO	

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TEAM NO. 118 STRUCTURES

STUDITION	(concluded)			
DWG/SPEC NO.	TITLE	2 COMP.	REVIEWED	REMARKS
SK 062172	LAYOUT - SLA/TRUSS ATTACH	65	NO	
SK 81672	LAYOUT - TRUSS FTG SLA ATTACH	65	NO	
10 101072	LAYOUT - TRUSS FTGS FOR DM	65	NO	
V53-932035	LAYOUT - CORNER FTG UPPER (4 PLACES) & +ZA LAR LH & RH (TRUSS)	65	no	· · ·
V53-932036	LAYOUT - ASTP DM TRUSS CORNER JOINT LH & RH & INTMD JOINT LH & RH	65	NO	
<b>▼53-932</b> 037	LAYOUT - TRUSS CTR SECTION FITTING	65	NO	
V53-325000	TRUSS - ASTP MODULE SPT, ASSY OF	15	NO	

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TEAM NO.

TEAM CAPTAINS

115 MECHANISMS

R. WHITE EX. 3375

MASA

G. THIES

DRAWING NO. & COMPLETE DRAWING TITLE REVIEW AT PAST REVII 8 V36-553700 70% HATCH MECH. INSTL. YES V36-553701 70% GEARBOX ASSY YES V36-553730-HANDLE 1001 YES V36-553740 GUIDE 100\$ YES V36-553750 YES BUNGEES 100% V36-553760 YES LATCHES 100% V36-553776 LEVER YES 100% V36-553782 HOUSING 100% YES V36-553784 LINK 100% YES V52-550210 RETENTION FITTING 80% NO V52-550217 'B' TOOL STOWAGE 80% NO V52-550218 ALIGNMENT FITTING ASSY 80% NO V52-550223 HINGE ASSY 80% NO .

LAYOUT V52-955020

MA0308-0223	REFURBISHMENT	50%	NO
MA0308-0224	ASSEMBLY & INSTL		NO
MA0208-0181	CHECKOUT, DOWNEY		NO
MA0208-0182	CHECKOUT, KSC		100

(1) ESTABLISH NEW DASH NUMBERS FOR ASTP

DRAWING NUMBER	DRAWING TITLE	COMPLETE REVIEW AT	
V52-550222 V52-550219	RETENTION ARM ASSY, DM HATCH HATCH STABILIZER	80% 80%	NO
VS2-550300	CONTROL INSTL. MANUAL OVERRIDE CONTROLS DY ECS		NO
V16-556017	(1) ASSY OVERRIDE CONTROL		NO
F01-550400 V52-550401	TARGET ON TRUSS BASE EXTENSION	50% 50%	NO NO
<ol> <li>ESTABLISH N V52-955020</li> </ol>	EW DASH NUMBER FOR ASTP LAYOUT HATCH MECH.	an and a second s	

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22

SK 411867 LAYOUT MANUAL OVERRIDE CONTROLS

V52-955931 LAYOUT TARGET

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SPEC. NO.	SPEC. TITLE	S COMPLETE	REVIEWED
MA0209-0124	COAS ALIGNMENT & CHECKOUT (DOWNEY)		мо
MA0209-0125	TRUSS MIG. TARGET ALIGN & C.G. (KSC)		Ю
MA0301-0102	FIRE EXT. HANDLING & INSTALL.	~~	NO
MA0301-0103	ASTP STACKING SPEC.		641
HA0301-0104	MANUAL ECS CONTROL REFURB.		юч
MA0301-0105	DM HANDLING & STACKING (DOWNEY)		סא
MA0308-0223	DM HATCHES REFURB. PROCEDURE		NO
H40308-0224	DM HATCH MECHANISM - ASSY ADJUSTMENT, & OPERATION OF		oч
MA0208-0181	DM HATCHES CHECKOUT (DOWNEY)		NO
MA0208-0182	DM HATCHES CHECKOUT (KSC)		DИ
MA0308-0225	MANUAL ECS INSTALLATION/C.O.		NQ
MC280-0010	PDC TO FIRE EXT. PROC.		NO
HC161-0012	PDC TO ECS CONTS.		би
* ME161-0012	REVISION TO ECS CONTROLS		NO
	· · · · ·		

SPEC. NO.	SPEC. TITLE	COMPLETE	REVIEWED
MA0209-0124	DAS ALIGNMENT & CHECKOUT (DOWNEY)		NO
MA0209-0125	TRUSS MTG. TARGET ALIGN & C.O. (KSC)		DR
MA0301-0102	FIRE EXT. HANDLING & INSTALL.		NO
MA0301-0103	ASTP STACKING SPEC.		Ю
MA0301-0104	MANUAL ECS CONTROL REFURB.	6.4	NO NO
MA0301-0105	DM HANDLING & STACKING (DOWNEY)		NO
MA0308-0223	DM HATCHES REFURB. PROCEDURE		NO
MA0308-0224	DM HATCH MECHANISM - ASSY ADJUSTMENT, & OPERATION OF	1 1 <b>1 1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NO
MA0208-0181	DM HATCHES CHECKOUT (DOWNEY)		NO
MA0208-0182	DAN HATCHES CHECKOUT (KSC)		NO
MA0308-0225	MANUAL ECS INSTALLATION/C.O.	<b></b> , , , <sup>1 -</sup>	NO
MC280-0010	PDC TO FIRE EXT. PROC.	n na	NO
MC161-0012	PDC TO ECS CONTS.	- <b></b>	ND
ME161-0012	REVISION TO ECS CONTROLS		NO

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TEAN NO. 12 DOCKING SYSTE	<u>NASA</u> MS L. WILLIAMS EX.	TEAN CAPTAINS 2557	C. LOWRI	n an
-				t in the second se
CAG, SPEC NO.	TITLE	\$ CO!P.	REV IEAED	ETVIERS
DTT-574101	DOCKING SYSTEM ASSY. (V51-957420)	Û		X
DTT-574200	BASE & TUNNEL ASSY. (V51-957420)	100	NO	n <b>X</b> arah serin
DTT-574216	ALIGNMENT PIN LOCKOUT (V51-957421)	70	NO	<b>X</b>
_DTT-574218	BASE ASSY. (V51-957420)	100	NO	X (Rel
DTT-574300	BODY MOUNTED LATCH ASSY (V51-957430)	100	NO	X Supervision
DTT-574350	BODY MOUNTED LATCH LUG	100	NO	
DIT-440100	ELECTRICAL ASSY		- HEF	
DTT-574860	SWITCH MODULE ASSY	100	NO	<b>X</b> • • • • •
DTT-574400	STRUCTURAL RING LATCH INST (V51-957440)	L. O	-	X States
DTT-574401	STRUCTURAL RING LATCH ASSY (V51-957440)	. 100	NO	· X
DTT-574900	PRIMARY DRIVE, GEARBOX ASS (V51-957490)	Y O	-	x
DTT-574950	SECONDARY DRIVE, GEARBOX A (V51-957495)	SSY O	-	r

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TEAM NO. 12 DOCKING SYSTERS

DWG/SPEC NO.	TITLE	& COMP.	REVIEWED	REMARKS	· ·
F05-100401	DM TIE-DOWN & SEP SYS.	0	-	X J	
121-500261	STI PT	100			(5.5)
	NOT .	200			(Rel.
V34-390203	BOLL	100		X	tRel.
V34-590266	PIN	100		X	(Rel.
V34-590268	WASHER	100	•	I	(Rel.
V34-590269	PIN	100		X	(Rel.
V34-590270	SHIELD	100		X	(Rel.
V34-590271	ATTACHMENT	100		X	(Rel.
₹34-590272	BLOCK	100		X	(Rel.
V34-590273	STRAP	100		X	(Rel.
V34-590263	SPRING	100		X	(Rel.
V34-590261	SHIM	100		X	(Rol.
V34-590259	FRANGIPLE LINK ASSY	100		X	(ReI.
V34-590258	LINK	100		X	(Rel.
V34-590282	BRACKET	100		x	(P.JL.
DTT-574500	CABLE RETRACT SYS. INSTL. (V51-957450)	0		<b>X</b>	
DTT-574525	GEARBOX ASSY (V51-957450 - Sheet 2)	o	·* •	X	
DTT-574501	BUNGEE ASSY (V51-957450)	100	NO	X	
DTT-574600	ATTENUATOR ASSY (V51-957460)	0		x	
DTT-574612	SWITCH ASSY (V51-957460)	100		I	

TEAM NO. 12 DOCKING SYSTEMS

DHG/SPEC NO.	TITLE	C	2 COMP.	REVIEWED	RE	2 3
DTT-574650	PASSIVE ATTENUATOR ASS (V51-957465)	Y	100	NO		X X
DTT-574700	GUIDE RING ASSY (V51-957470)		100	NO		X,
DTT-574800	CAPTURE LATCH ASSY (V51-957480)		100	NO		X

TEAN NO.	X101	TEAN CAPTAINS		<b>x</b>
21 INSTRUMENTATION	F. ROTRANEL	EX. 3073	C. 2	ENENICK
ENG./SPEC NO.	TITLE	2 COH2.	REVIEWED	<u>PERAEKS</u>
SK-V34-111-3(P) SH 1-5	DM INSTR.	100	NO	
SK-V34-111-4(A)	RCS QUADS	100	NO	•••
SK-V34-111-8	PSM INSTR	100	NO	
SK-V34-111-9	SPS INSTR	100	NO	
SK-V34-110-1	PWR DISTR	100	NO	
SK-V34-112-1	J-BOX/PCM	100	NG	
SK-V34-975111	INSTR - AS IS & DI	EL. 100	NO	

ENCLOSURE C

# CMS 111 CDR/DM - DS PDR TEAM 1 MISSION REQUIREMEMTS

# CO-CAPTAINS

# NR: B. C. JOHNSON

NASA: R. J. WARD

## ATTENDEES

G.	F. Wheeler	NR
Α.	J. Frank	NR
W.	Fitzpatrick	NR
к.	Lengner	NR
т.	Shanahan	NR

## Experiment Status

The current status of experiments is based on the following schedule:

Proposed experiment list from scientific disciplines	1-1-73
Integrated list with priorities from NASA Headquarters	<mark>2-1-</mark> 73
Experiments approved by MSFEB and interfaces defined	7-1-73
Delivered flight units	10-1-74

The current listing of candidate experiments are presented in Attachment 1.

ACTION ITEM: NR investigate impact of providing electrical power in the DM for experiments RID 1-3

# Mixed Crew Return

The capability for the return to earth of a cosmonaut in the CM and an astronaut in the Soyuz is a NASA requirement. If suited return or suited operations for DM jettison is required, provisions for the suiting of the visiting cosmonaut and U.S. astronaut must be considered. Current planning does not include suited operation for this contingency.

## Launch Sequence

The Soviets are requesting 10 launch opportunities - 10 consecutive days for Soyuz to launch. Additionally, a requirement for 5 consecutive Apollo launch opportunities is imposed.

ACTION ITEM: NR investigate CSM cryogenic launch redlines for the 12-day mission and a 5-day mission. RID 1-3

# Transfer Sequence

NASA requires four crew transfers. Two potential sequences were defined (1) two transfers each day and (2) one transfer the first day and three transfers the second day.

ACTION ITEM - NR investigate the impact of the two transfer sequences described above. Additionally, NR define the restrictions imposed by the CSDM on a fifth transfer due to ECS, thermal or other system constraint (RID 1-3)

# Docking Target on DM

To accommodate a Soyuz active docking, a potential requirement exists for a docking target on the docking module. The NASA provided NR with the Soviet target requirements.

ACTION: NR define the design requirements for installation of a target for Soyuz on the DM. (RIO 1-3)

## Mission Guidelines

Mission guidelines, described in AP72-30 were discussed and updated, by the NASA, based on the October 1972 US/Sovient agreements. The revised mission guidelines are included in Attachment 2. These revised guidelines define the baseline for mission/systems compatibility evaluations and NASA mission planning support studies.

# ASOCAR

The "Mission Phase Summary" of the ASOCAR was reviewed and updated. The working groups review of the ASOCAR draft will be used to finalize the ASOCAR documents which will be badeline for the January, 1973 CDR.

Ward Albert

BC Johnson

Attachment 1 Minutes Mission Requirements

2

# CANDIDATE ASTP EXPERIMENTS

ATMOSPHERIC CLOUD PHYSICS ELECTRIC FURNACE ELECTROPHORETIC SEPARATION ELECTRON BEAM COSMIC RAY DETECTOR RADIO WAVE OCCULATION ATOMIC CLOCK ABSORPTION SPECTROSCOPY BIOMEDICAL INVESTIGATION REMOTE MANEUVERING UNIT MULTI CHANNEL OCEAN COLOR SENSOR WEATHER CONTROL MANUFACTURING IN SPACE PARTICLE SEPARATION MAGNETIC FIELD MAPPING HIGH-Z PARTICLE IONOSPHERE AND ATMOSPHERE ELECTRON DENSITY RELATIVISTIC EFFECTS OF SPACEFLIGHT MILLIMETER WAVE BAND EARTH ATMOSEHERE PROBING BIOSTACK/MEED TYPE SPACECRAFT SELF-VIEWING OCEANOGRAPHY

Attachment 1 Page 1

2

### MISSION GUIDELINES

.SOYUZ WILL BE LAUNCHED BEFORE APOLLO

.THE NOMINAL SOYUZ LAUNCH DATE IS 15 JULY 1975

.THE SOYUZ ORBIT WILL BE CIRCULARIZED BETWEEN 230 AND 222 KM (124 AND 120 N MI) APPROXIMATELY 5 HOURS AFTER LIFTOFF

.THE LAUNCH WINDOW EXTENDS FROM JULY 1 TO NOVEMBER 30, 1975, AND FROM APRIL 1 TO NOVEMBER 30, 1976

.THE SOYUZ LIFTOFF TIME FOR JULY 1S 1230 GMT(1530 MT) FOR CURRENT MISSION PLANNING

.THE SOYUZ WILL HAVE TEN DAILY CONSECUTIVE LAUNCH OPPORTUNITIES

.THE FIRST APOLLO LAUNCH OPPORTUNITY OCCURS 7.5 HOURS AFTER SOYUZ LIFTOFF (2000 GMT/1500 EST)

.THE APOLLO WILL HAVE FIVE DAILY CONSECUTIVE LAUNCH OPPORTUNITIES.

.FOR THE FIRST LAUNCH OPPORTUNITY, THE APOLLO VEHICLE WILL BE INSERTED INTO A 150 X 170 KM (81 X 92 N MI) ORBIT AT AN INCLINATION OF 51.6 DEGREES.

.THE LAUNCH VEHICLE PAYLOAD IS 36,500 POUNDS (INCLUDING A 900-POUND YAW-STEERING ALLOWANCE)

.THE FINAL RENDEZVOUS ORBIT ALTITUDE IS BETWEEN 230 AND 222 DM (124 AND 120 N MI)

.THE APOLLO WILL BE THE ACTIVE SPACECRAFT FOR RENDEZVOUS AND THE INITIAL DOCKING.

.THE RENDEZVOUS WILL NOMINALLY OCCUR ON THE 14TH OR 29TH APOLLO REVOLUTION

.ALLOWANCE FOR EARLY MISSION CONTINGENCIES COULD DICTATE A DELAY IN RENDEZVOUS OPERATIONS UNTIL THE THIRD DAY OF THE APOLLO MISSION. A NOMINAL WAITING ORBIT OF 240 KM (130 N MI) SHOULD BE ASSUMED.

Attachment 2 Page 2

# MISSION GUIDELINES (CONT)

- . DOCKING WILL NORMALLY OCCUR EITHER APPROXIMATELY 21 OR 45 HOURS AFTER APOLLO LIFTOFF. THE MAXIMUM INTERVAL BETWEEN LIFTOFF & DOCKING WILL BE 69 HOURS
- . THE MAXIMUM OPERATING TIME OF THE VHF-AM EQUIPMENT IN THE RANGING MODE IS FIVE HOURS
- . THE MAXIMUM REQUIRED OPERATING RANGE OF THE VHF-AM RANGING EQUIPMENT SHALL BE THE EXISTING CSM EQUIPMENT CAPABILITY (267 KM/144 N MI)
- . SEXTANT TRACKING OF SOYUZ WILL COMMENCE JUST AFTER NC2 AT A RANGE OF APPROXIMATELY 510 KM (275 N MI)
- . FOR THERMAL DESIGN, THE MAXIMUM SM-RCS CONTINUOUS BURN REQUIREMENT IS A FOUR-QUAD, ALL SM-RCS, DEORBIT BURN FROM A 240 KM (130 N MI) ORBIT
- . FOR SM-RCS PROPELLANT BUDGET PURPOSES, RCS BACKUP DEORBIT WILL BE CONDUCTED IN THE HYBRID MODE
- . DOCKED ATTITUDE WILL NOMINALLY BE CONTROLLED BY THE CSM
- . NEITHER THE APOLLO SPS NOR THE SM-RCS -X TRANSLATION JETS WILL BE USED IN THE DOCKED CONFIGURATION FOR TRANSLATION OR ATTITUDE CONTROL
- . THE DOCKED DURATION IS TWO DAYS. NORMALLY DOCKED OPERATIONS ARE ON EITHER THE SECOND & THIRD OR THIRD AND FOURTH DAYS OF THE MISSION. FOR CONTINGENCIES, DOCKED OPERATION MAY BE DELAYED AS LATE AS THE FOURTH & FIFTH DAYS OF THE APOLLO MISSION ASSUMING A FIRST OPPORTUNITY APOLLO LAUNCH
- . DURING DOCKED OPERATIONS THE SOYUZ OPERATING PRESSURE IS 520 ± 30 mmHg & THE APOLLO OPERATING PRESSURE IS 258 ± 15 mmHg

MISSION GUIDELINES (CONT)

UNINTERRUPTED SLEEP PERIODS OF ABOUT 10 HOURS WILL BE REQUIRED. ATTITUDE DURING THESE PERIODS MAY BE SOLAR INERTIAL, LOCAL HORIZONTAL, OR PTC DRIFT.

NO EVA CREW TRANSFER CAPABILITY IS REQUIRED, MIXED CREW RETURN IS REQUIRED FOR CONTINGENCIES. (THE RETURN OF AN ASTRONAUT IN THE SOYUZ AND A COSMONAUT IN THE APOLLO).

DURING DOCKED OPERATIONS, SOLAR INERTIAL ATTITUDE IS REQUIRED FOR A TOTAL OF 10 HOURS PER DAY TO MEET SOYUZ SOLAR PANEL AND BATTERY RECHARGE REQUIREMENTS. THE 10 HOURS NEED NOT BE CONTINUOUS. THE SOLAR INERTIAL ATTITUDE WILL BE THE SAME AS THAT ADOPTED FOR SKYLAB MISSIONS FOR THE CSM, NAMELY, THE SUNLINE WILL IMPINGE ON THE APOLLO VEHICLE ALONG A LINE OFF-SET  $35 \pm 5$  DEGREES FROM THE -Z AXIS IN THE DIRECTION OF THE -Y AXIS. IN ADDITION TO THE 10-HOUR SOLAR INERTIAL REQUIREMENT, A DIFFERENT INERTIAL ATTITUDE OR A LOCAL REFERENCE ATTITUDE MAY BE REQUIRED FOR A MAXIMUM OF THREE CONTINUOUS REVOLUTIONS FOR THREE PERIODS. MINIMUM TIME BETWEEN ANY TWO OF THESE PERIODS WILL BE ONE REVOLUTION.

PRIOR TO FINAL SEPARATION OF THE APOLLO AND SOYUZ, ADDITIONAL DOCKING TESTS WILL BE PER-FORMED TO DEMONSTRATE BOTH NOMINAL AND BACKUP MODES OF THE DOCKING SYSTEMS.

DURING POST-DOCKED OPERATION, THE CM FORNARD HATCH AND THE DM NO. 1 HATCH WILL NORMALLY REMAIN OPEN TO ALLOW LIMITED ACCESS TO THE DM.

THE DM WILL BE RETAINED UNTIL JUST BEFORE CSM DEORBIT

w N THE MAXIMUM DURATION OF THE APOLLO MISSION WILL BE 12 DAYS

NORMAL RECOVERY OPERATIONS WILL BE PLANNED FOR APOLLO IN THE PACIFIC OCEAN NEAR HAWAII

# ASTP CSM 111 CDR/DM PDR TELECOMMUNICATION MINUTES REVIEW TEAM NO. 2

The Telecommunications Review Team Members present during the System Review were as follows:

	NASA		NR/SD
Р. С. Е.	Westmoreland Glancy Lattier	С. К. W.	Zemenick Gilson Dwinell
Α.	Travis	т.	Hanchett
0.	Graham		
Μ.	Hamilton		
с.	Land		
R.	Dales (NR RASPO)		
J.	McClanahan (NASA Hq.)		

The Telecommunication System Chematics/Function Diagrams defining the CSM 111 and DM Systems baseline were reviewed. These documents were as follows:

a. SK-696-504-1 Rev C, Single Line Functional Diagram

- b. SK-V34-581-1 NC, VHF/FM System
- c. SK-V34-581-2 Rev B, CCU Stations (Remote)
- d. SK-V34-581-3 NC, Speaker Box
- e. SK-V34-581-6 Rev D, Video Recorder and Controls
- f. SK-V34-581-8 Rev A, S-Band Omni Antenna Selection

The Drawing Review resulted in three areas of concern - the VHF

.The VHF/FM System sketch did not show the current Antenna System concept being considered utilizing a passive power splitter feeding the three antennas.

.The implementation of the overall television video system is not considered by NASA/MSC to provide optimum TV performance.

.The USBE designated for CSM 111 has not been evaluated for FM transmitters video response.

RID's for each of these above items were prepared and will be submitted requesting that:

.The VHF/FM System drawing be revised to incorporate the approved antenna system.

- .NR provide a complete TV system schedule including hardware usage and ICD preparation.
- .Prepare preliminary ICD's for TV system amplifier/switch, tape recorder, TV cameras and monitor.
- .Provide VTR control switching in a single location preferably near the VTR installation.
- .Provide a common TV camera bulkhead connector in CM, DM and Soyuz to simplify TV camera cable configuration.
- .Provide an on-board VTR playback/fast forward switch to the VTR controls.
- .CSM 111 USBE video frequency response will be verified or a Skylab USBE will be considered for use in CSM 111.

The CCU remote station, speaker box and S-band omni controls configuration were approved.

The ASTP System Operations compatibility assessment review; CSM and Docking Module operational requirements/compatibility matrix, dated November 8, 1972 (Rough Draft) was reviewed, marked up and submitted to the NR mission/systems requirements group. It was observed that no TV video recording or playback capability had been included in this document.

A presentation of the VHF/FM transceiver and DM antenna system preliminary concept status was presented.

The three level concept of TV video routing/switching concepts were discussed for presentation to the CDR/PDR Board for resolution and implsmentation direction.

The ASTP CSM 111 CDR/DM-DS PDR Review item list for Team No. 2 in the NR handout were reviewed for total telecommunication system evaluation.

The following list of RID's were submitted by the NASA as a result of the review.

- 1. VHF/FM transceiver drawing revision
- 2. CSM 111 USBE video frequency response
- 3. TV system schedule request
- 4. TV system preliminary ICD preparation request
- 5. TV video recorder remote switch relocation
- 6. TV video recorder playback/fast forward control switch
- 7. Utilization of a common TV camera interface throughout CM, DM and Soyuz.

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TELECOMMUNICATIONS		PRODUCT APPROVAL		NR	C Zemenick
				MASA	Serry We function
PARC NO.	NALE.	APPPOVED	DISAPPROVER	RID NO.	REMARKS
SK-696-504-1 (C)	COMM SINGLE LINE FUNCT DIAG PARTIAL VIDEO		x	2-8	NASA PRESENTING A VIDEO SYS. CHANCE
SK-V34-581-1 (NC)	VHF/FM XCUR SKETCH	X			
SK-V34-581-2(B)	REMOTE CCU STATION SKETCH	х			
SK-V34-581-3 (NC)	SPEAKER BOX SKETCH	X			
SK-V34-581-6 (D)	VIDEO RECORDER CONTROLS/SYSTEM SKETCH		x	2-8	NASA PRESENTING A VIDEO SYSTEM CHANCE
SK-V34-581-8 (A)	OMNI S-BAND ANTENNA SELECT SKETCH	x			
ASTP SOCAR (ROUGH DRAFT)		х			APPROVAL BASED ON INCORPORATION OF NASA FURNISHED COMMENTS.
W Vy	tin an			- <sup>*</sup>	
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# TELECOMMUNICATIONS

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D. MT MO.	11 . T	APPROVED	DISAPPROVED	RID NO.	PEMARKS
SK-696-504-1(c)	COMM SINGLE LINE FUNCT D	ASPAN	VIDE C	× 2-8	NASA PRESENTING A VIDEO SYSTEM CHANGE.
\$K-V34-581-1(uc)	UHF/FM XCUR SKETCH	x		x Z-8 RID	
\$K-V34-581-2(B)	REMOTE COUSTATION SKetch	×			
\$K-834-581-3(NC)	SPEAKER BOK SKETCH	×			х.
\$ K- 134-581-6(D)	VIDEO RECORDER MONTRols/System sketch	×		x Z-8	NASA PRESENTING A VIDLO SYSTEM CHANGE
5K- V 34-301 20	sketch				
ASTP SOCAR (ROUGLE DRAFT)		×			APPEDAL BASED ON INCONPERSION TE A 45A CONNECTION COMM

### TEAM 3A - CREW EQUIPMENT

### CO - CAPTAINS

#### NR: G. THIES

### NASA: F. MC ALLISTER

#### ATTENDEES

R.	Hill	GE/MSC	
Т.	Staniec	NR/SD	
C.	Perner	NASA	
R.	Eggers	NR/SD	
W.	Fleming	NR/SD	
C.	Lackner	MSC/Rela. (Boein	ng)

### RID ITEMS

(1)	DM/Soyuz Transfer Bag 3A-2	
(2)	Hatch/O2 Mask Bag Interference	3A-1
(3)	Retention of CM $O_2$ Umbilical in DM	3A-5
(4)	Delete Crew Station ICD-DM 3A-3	

(5) Soyuz Drag Through Cable Retention 3A-4

### CSM 111

1. CSM 111 updates were reviewed and the following approved:

- a. Use of Nomex Thread
- b. Proof testing of O2 umbilical brackets
- c. Installation of G&N handholds
- d. Thread sealant to lap belt adjuster
- e. Provide a Ul stowage container
- f. Timing cables for DAC & EHC
- g. Delete requirements for return enhancement water
- h. Delete DC-DC converter
- i. GFE water gun QD modification

PGA ICD to be modified or deleted as required.

Team 3A Minutes Page 2

- 2. Mockup 28 crew equipment and stowage in CSM 111 docked configuration was reviewed and approved as presented.
- 3. One Back-up WMS Bag V56-601029 was added to stowage list due to elimination of waste stowage compartment.
- 4. Availability of flown PGA bags was reviewed at MSC prior to this review. Hardware is available from SC 106 and 108. Serial numbers were provided to P. Masucci/NR. NR to ASHUR items.
- 5. The CM COAS will utilize the more adjustable Skylab mount design. ASHUR to obtain SC 116 mount for reuse has been initiated by NR.
- 6. No special requirements were identified at this time for return of a Russian Crewman in the CM.

DM

- 1. DM water system and waste management system are as listed in the stowage list as approved by the Stowage Team 3C.
- 2. Crew Station ICD-DM to be deleted. See Stowage Team (3C) RID. 3C-(
- Engineering Development and Verification Test Plan was reviewed at MSC prior to this review. Comments are being forwarded by letter from NASA/CD.
- 4. DM Illumination Study completed 10-31-72 by C. Wheelwright, NASA/MSC. Lights located in MU-30 per study recommendations.
- 5. Retention of DM large stowage compartment lid was reviewed and approved as presented in MU-30.
- 6. Dummy cable connectors in the DM tunnel were considered to protrude into passage way. RID to change design was withdrawn due to operational requirements. Installation to be reviewed on Hi-Fi MU during CDR.
- 7. The tool kit as discussed with NR consists of the following items:

V36-601517-XXX Tool Bag (Existing Bag with Proper Labels), "B" Tool, "W" Tool, #4 Torque Set, and a new 12pt. box wrench for latch pin nut on DM hatch. Team 3A Minutes Page 3

### General

 CSM/Docking Module - COAS Target Configuration (Ref. Layout V52-955931 -Sketch Figure 1)

The docking target configuration has been agreed upon as shown in Figure 1. A mockup of this configuration was presented and reviewed by Tom Stafford. Utilizing a COAS this configuration was verified functional. NR will use a GFE CM type target assembly, (LDW-340-S1299 - Grumman Part No.) without modifying it.

The required -Y & -Z axis extension will be accomplished by means of new assembly which will mount to a common base with the target.

NR is designing a trass mounted base to mount the new axis extension assy and target which will allow adjustment of target to be accomplished in the same manner as present LM targets.

The radio active discs of the docking target are not required as a lighting aid.

2. ASOCAR

The crew equipment portions of the ASOCAR were reviewed. Paragraphs 3.1.5.3 and 4.1.2.3 were red lined and provided to B. Johnson, Mission Requirements, Team No. 1.

One Page of Product Approval Sheet Attached Figure 1 Attached

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NASA Imtallister 11-9-72



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CREW	I EQUIPMENT	DOUTLA VOD	DOUND	حيالا	L. M. Thies
				NASA	Jud mascust
PART NO.	HAND -	APPROVED	DISAPPROVED	RID NO.	REMARKS
LS 0850-31	CREWMAN RESTRAINT ASSY DM	x			TWO ASSY REQ. UTILIZING TWO GFE HOOKS SEB 33100221-303
LS 0849	DM/SOYUZ TRANSFER BAG ATTACHMENT CONCEPT	x			USE OF VELCRO STRAPS THROUGH MOUNTING PADS FOR D-1
LS 0849	DM/SOYUZ TRANSFER BAG		x	32-2	CHANGE LID CONFIGURATION
LS 0851	0 <sub>2</sub> mask bag assy.	х			
	0 <sub>2</sub> MASK BAG ASSY, DM INSTL.				
	• 02 OPERATOR LOCATION	x		-	
	• 02 PASSENGER LOCATION		x	3a-1	HATCH INTERFERENCE
	FIRE EXTINGUISHER LOCATION	x			
	CREW STATION ICD-DM		x	32-3	REQUIREMENT NO LONGER EXISTS.
	SOYUZ DRAG THROUGH CABLE		x	3a-4	PROVIDE RETENTION.
	O2 UMBILICAL FROM CM INTO DM		x	3a-5	PROVIDE RETENTION IN DM
·					

### TEAM 3B - DISPLAYS & CONTROLS

#### CO-CAPTAINS

NR: H. HORII

he

NASA: A. B. OLSEN

#### ATTENDEES

R. Lavey H. Horii E. Demarchi A. Olsen H. Alcantar W. Langdoc R. Miller S. Nassiff NR/Elect. D&C NR/Elect. D&C NR/Elect. D&C NASA-MSC/ E&D NASA/RASPO NASA-MSC/FCID NASA/Boeing NASA/FCID

#### RID ITEMS

- (1) 3b-| Panel 274 Arrangement of Controls
- (2) 3b-2 Incomplete Documentation
- (3) 3b-4 Cabin Vs. DM Nomenclature for DM Display/Controls (WITHDRAWN)
- (4) 3b-3 Meter Glass Protection

The documents listed on the Product Approval Sheets attached were reviewed. Additionally, the "D" appendix to SID64-1345 was reviewed, redlined, and comments provided to specification team.

The implementation of the DM caution and warning system was discussed. A lab book page showing annunciator temperature as a function of time from energization was discussed. Some concern was expressed for the ultimate temperature of the Annunciator lights. However, the ECLSS team indicated the maximum out-of-tolerance time for any of the C&W inputs should be less than 30 seconds. For problems that exist longer than this the C&W could and should be disabled. On this basis, the proposed C/W implementation and annunciators is acceptable. Team 3B - Minutes Page 2

The "ASTP Systems Operations Compatibility Assessment Review" was reviewed and redlined in DM 4.3.4 section and Table 4.3-1 to include  $O_2$  partial pressures as being on Caution & Warning.

The DM Lighting Review was discussed and an advance copy of the test report reviewed. It was agreed that the floodlights as installed in the DM (per the lighting review recommendations) are adequate.

The numbering system for DM panels was coordinated with the Structure Team RID #11a- .

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				NASA	Claran & Claur
PART 10.	MALE	APPROVED	DISAPPROVED	RID NO.	RELARKS
EO M809606	EPS SYSTEM SCHEMATIC				NOT REVIEWED BY D&C (3B)
₩34-945103	CRYO SYS SCHEM				NOT REVIEWED BY D&C (3B)
V34-945081	RCS SYS SCHEM				NOT REVIEWED BY D&C (3B)
₹734-945046	SPS SYS SCHEM				NOT REVIEWED BY D&C (3B)
₩34-945049	EDS SYS SCHEM				NOT REVIEWED BY D&C (3B)
₹34-945102	ELS/IES SYS SCHEM			-	NOT REVIEWED BY D&C (3B)
₩52-945530	D.S. SYS SCHEM				NOT REVIEWED BY D&C (3B)
	(WILL INCLUDE C/W)				
₹52-	DM ELECT. SYS. SCHEM		х	36-2	REVIEWED SKETCH - DWG INCOMPLETE
<b>V36-97602</b> 9	D&C CONFIG CONTROL DWG	х			DOES NOT INCLUDE PNL 231 IT WILL BE INCLUDED LATER
V36-977111	PNL 1 SCHEM	X			
₩36-977112	PNL 2 SCHEM	X			
V36-977174	PNL 274 SCHEM				EPS (TEAM #6) REVIEWED
₩37-945204	SM PWR DIST BOX SCHEM				NOT REVIEWED BY D&C (3B)
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D&C			<u>onut</u>	۲IJ.	1/2/for
				NASA	Claron & Olsen
PART NO.	174160	APPROVED	CISAPPROVER	RID NO.	REMARKS
₹72-944010	DM FEEDTHRU LAYOUT				NOT REVIEWED BY D&C (3B)
V52-922010	DM FEEDTHRU COVER LAYOUT				NOT REVIEWED BY D&C (3B)
V52-940100	DM EQUIP BAY LAYOUT				NOT REVIEWED BY D&C (3B)
V52-940400	CM/DM ELECT INTERFACE LAYOUT				NOT REVIEWED BY D&C (3B)
V52-976010	DM D&C PANELS LAYOUT	12 Yulio	х	36-2	INCOMPLETE
₹56-946202	CM TUNNEL LAYOUT			· .	NOT REVIEWED BY D&C (3B)
₹36-914001	VIDEO TAPE RCDR LAYOUT				NOT REVIEWED BY D&C (3B)
V36-976500	PNL 2 LAYOUT	x			
V51-944001	DS EQUIP/WIRING LAYOUT	Ì			NOT REVIEWED BY D&C (3B)
<b>V52-9</b> 44005	DM/SOYUZ INTERFACE LAYOUT				NOT REVIEWED BY D&C (3B)
₩36-977084	C/W SCHEMATIC 110, 112-115A	X			
₹36-977094	C/W SCHEMATIC 111	X			
V36-977115	PANEL 5 SCHEMATIC 111 ONLY	Х			
V52-	SCHEMATIC DWGS FOR DM PANELS 800, 812, 820, 821, & 826		х	36-2	INCOMPLETE
V52-	ASSEMBLY DWGS FOR DM PANELS 800, 812, 820, 821, & 826		x	36-2	INCOMPLETE
5	1 • • • •				

77.47 NO. <u>3B</u> 77.47 NAME <u>D&amp;C</u>		0511111077/01 	<u>POVAL</u>	NR NASA	PADE 3_0P 5_ A c/fort Prenu A. Olsen
PART NO.	NACE .	APPROVED	DISAPPECVEL	RID NO.	REMARKS
V36-445061	ESI-MDC				
₹36-446042	ESI-FWD COMPT				
₩37-440701	ESI-FWD BLKHD				NOT REVIEWED BY D&C (3B)
₹7-447303	ESI - AFT BLKHD				
V37-710501	CABLE INSTL - FUEL/OXID QTY				
₹37-759515	INSTR INSTL.				
₩37-440602	SM ELECT EQUIP/WIRING INSTL.				
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## CSY 111 CDW/PY-DS PPP

## FRODUCT APPROVAL

PAGE 4 OF 5 A MR Hannub. (Ulsin NASA

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PART NO.	HA1:33	APPRONED	DISAPPROVED	RID NO.	RETARKS
E0 M803072 803074	HI GAIN COAX CABLE INSTL (V37-710418 & V37-710402) INSTL. NEW TEMP. SENSORS	NOT REVI NOT REVI	EWED BY D&C EWED BY D&C	(3B) (3B)	
803075	INSTL. NEW TEMP. SENSORS	NOT REVI	EWED BY D&C	(3B)	
804376	ADD SKYLAB QUADS TO CSM 111	NOT REVI	EWED BY D&C	(3B)	
804377	SKYLAB QUAD DETAILS CSM 111	NOT REVI	EWED BY D&C	(3B)	
804378	<b>V</b> 36-761141	NOT REVI	EWED BY D&C	(3B)	
804350		NOT REVI	EWED BY D&C	(3B)	
808831		NOT REVI	EWED BY D&C	(3B)	
808832	PWR DIST BOX (ASSY DWG)	NOT REVI	EWED BY D&C	(3B)	
808834	PNL 1 CHANGES FOR ASTP (CSM 111)	Х			
808835	PNL 1 INSTIN PERSPECTIVE CSM 111	Х			
808861	CHANCES V57-458260 - FUSE & DIODE BOX ASSY (REQD. ON CSM 111)	NOT REVI	EWED BY D&C	(3B)	
808863	DELETE HGA FROM CSM 111	NOT REVI	EWED BY D&C	(3B)	
809008	NEW FUSE REQUIREMENT (EO 808832)	NOT REVI	EWED BY D&C	(3B)	
809010	ADD COLOR T.V. REQMT TO CSM 111	NOT REVI	EWED BY D&C	(3B)	
809011	NEW PSM CONFIG. FOR CSM 111	NOT REVI	EWED BY D&C	(3B)	
			222 		

677AM 110. <u>3B</u>	001	111 COR/201 201 202	PAGE <u>5 OF 5</u>
Transfer Manual <u>D&amp;C</u>		PTCUUT APPUGUAL N	Caroub. alsur
PART 1.0.	NAME	APPROVED DISAPPROVED RID NO.	REMARKS
EO M809012	ADDIN OF SKYLAB PSM TO 111	NOT REVIEWED BY D&C (3B)	
809013	V34-710100, V36-71600, V36-714001	NOT REVIEWED BY D&C (3B)	
809014	V36-700001 - ELECT. SYS. INSTL.	NOT REVIEWED BY D&C (3B)	
809018	V36-446974 - WIRE HARNESS STRAP	NOT REVIEWED BY D&C (3B)	
809019	FWD BLKHD CLAMP	NOT REVIEWED BY D&C (3B)	
809020	DKG RING CLAMP - WIRING SUPPORT	NOT REVIEWED BY D&C (3B)	
809623	ELEC. PWR DISTR CONTROL PNL (ASSY)	NOT REVIEWED BY D&C (3B)	
810058	COAX PANEL, SPS & WIRE BUNDLE	NOT REVIEWED BY D&C (3B)	
808804			
808805	ADVANCE PROCUREMENT	x	
808806	ADVANCE PROCUREMENT	x	
808807	ADVANCE PROCUREMENT	X	
808808	ADVANCE PROCUREMENT	x	
808816	REL. NEW DWG - V37-424631	NOT REVIEWED BY D&C (3B)	
809023	NARUNESS ASSI. V37-444601 CRYOCEN ELECT. EQUIP. SHELF INSTL.	NOT REVIEWED BY D&C (3B)	
808829	INSTR INSTL - SIG COND	NOT REVIEWED BY D&C (3B)	
808837	RELEASES 3 DWGS - DRG PROBE V36-446203, 4, & 5	NOT REVIEWED BY D&C (3B)	

### TEAM 3C - STOWAGE

### CO-CAPTAINS

#### NR: K. E. SHAW

NASA: C. D. PERNER

ATTENDEES

с.	Per	mer	NASA
F.	Mc/	Allister	NASA
J.	W.	Thompson	NASA
K.	E.	Shaw	NR/SD
W.	L.	Hollis	NR/SD
J.	Α.	Breneman	NR/SD

#### RID ITEMS

(1) 3C-1 Stowage List Changes

#### DISCUSSION

- 1. Update of the stowage list to include changes resulting from the US/Soviet meeting that occurred in Sept. 1972.
- 2. Review and NASA approval of the  $N^R$  proposal to decrease the transfer equipment and the launch of the communications equipment in the DM.
- 3. Review and NASA approval of the Product Approval Sheets containing ll drawings and EO's.
- 4. Review of the Systems Operations Compatibility Assessment Review Document. Necessary changes, as follows, were marked on the copy and returned to the operations requirements group for correction:

Paragraph 4.6 - Stowage:

- a. Maximum mission duration of 12 days WAS Nominal mission duration of 12 days.
- b. (Locker D3) WAS (Locker D1)
- c. Changes to Table 4.6-1 DM Launch Stowage:

Item	Quantity		
02 Mask	2	WAS	Qtv 3
Universal Mount, SL	1	ADD	
Gas Separator	1	ADD	
Drinking Valve	1	ADD	

Team 3C - Minutes Page 2

- 5. Determination was made to use a standard PGA Bag, available from "H" mission vehicle inventory, instead of attempting to ASHUR and clean a revised (extended)type bag from CSM 114.
- 6. Although no requirement for the Sextant Adapter can be identified, it is being retained in the stowage list. This item was originally carried on Apollo SC to accommodate lunar surface photography.
- 7. It was decided that no special stowage provisions are to be provided for a mixed crew entry.
- 8. Significant stowage list changes are as identified in PDR RID 3C-1 including items discussed in 1, 2, 5, and 6 above.
- 9. A review of inflight stowage of the hatch, probe, drogue, and the D3 stowage locker was conducted in MU-28. The NASA approved the stowage locations as presented and NR verified that the drogue would not interfere with the Video Tape Recorder cables. It does restrict access to Panel 274.

One Page of the Product Approval Sheet Attached

NR X6 Shaw

NASA Chio D

Page 1 of 1

## ASTP S/C 111 PRODUCT APPROVAL

TE/M STOLAGE 3C

PARI NUMBER	PART NAME	% COM- PLETE	APPROVED	DISAPP ROVED	RID NO.	REMARKS
V36-780025 A FOR 80431	SNAP & CUSHION INSTL	100%	~			
V36-601104 EON 804029	STUD MOUNT	100%	~			
V36-782040 FOM 804000	CUSHION - R13	100%	~			
V36-780004 EOM 804029	SNAP PLATE	100%	$\checkmark$			
<b>V36-7</b> 24007 EM 803980	CUSHION - FILTER QD WMS	100%	$\checkmark$			
V36-785009 EOM 203979	CUSHION - COAS FILTER	100%	$\checkmark$			
V36-785015 FOM 803920	CUSHION - U3	100%	$\checkmark$			
V36-788004 EOM 803980	CUSHION URINE FILTER	100%	2			
V56-786764 EOM 803980	CUSHION - U3	100%	V			
<b>V36-7</b> 87603	CONTR - VOL All	100%	$\checkmark$			
V <b>36-</b> 7878602	CUSHION - TV MONITOR	100%	~			

J

\* ALL ABOVE ITEMS ARE FOR C/M

Chris D Berow 11-9-72

#### TEAM 4 - ECLSS

### CO-CAPTAINS

NR: J. ROSS

NASA: L. BELL

#### ATTENDEES

D. F. Hughes J. M. Ross R. Grafe W. Bobo G. Evans V. L. Johnson D. R. Forward K. W. Irwin C. S. Lackner L. E. Bell MSC/CSD NR/ECS MSC/CSD CE/MSC MSC/Garrett NR/Project Office MSC/RASPO Dny MSC/TBC Safety MSC/TBC Reliability MSC/CSD

#### DISCUSSION

- 1. The DM ECLSS drawings as listed on the attached sheet were reviewed.
- 2. The DM ECLSS PDC's for hardware refurbishment as listed on the attached sheet were reviewed.
- 3. Twelve RID's were submitted against the DM ECLSS
- 4. The modifications of the CSM 111 ECS were discussed. It was determined that the CO<sub>2</sub> sensor cabin and suit pressure transducers would be changed to the latest configuration. The suit pressure transducer (part of the ECU) will be changed out by NR at Downey. The additional principal differences between the SC 111 ECU and the latest ECU configuration is that transducers and controllers have not received "burn-in" testing and the suit heat-exchanger water expulsion flow was not tested. The flow will not be determined until KSC testing. MSC/CSD concurs with the ECU configuration.
- 5. A radiator performance analysis of the ASTP mission is scheduled to be done; however, it will not be available until mid-1973.

Team #4 Minutes Page 2

- 6. The DM hatch  $\Delta \rho$  gages must be checked installed, however, a "B" nut cap filter must be removed to attach GSE. Access to the "B" nut is limited and a backup wrench cannot be used to preclude damage to the gage fitting. NR will specify maximum torque values for the "B" nut cap to facilitate removal without gage damage.
- 7. Although the drawings did not so specify, NR stated that all gas supply or dump valve exhaust fitting will have diffuser or filter type caps.
- 8. The tank burst disc pressure requirements were discussed and agreed to as defined below:

  - a. Tank proof pressure (component test): 2000 psig
    b. Disc burst test: 1750 ± 52 psig
    c. Disc component acceptance test: 10 cycles to 1528 psig

  - d. Tank proof with disc: 1345 psig
    e. System proof DM installed: 1345 psig
  - f. Other system components proof ATP: 1500 psig minimum
- 9. PLV fan housing design. Several concerns were expressed by MSC CSD concerning the fan housing assembly design. These were noise due to vibration and the apparent complexity of the machining operation for the louver. About 0.04 in. excess tolerance exists in the build-up of the housing (louver) assembly and concern is expressed that the various elements will vibrate and cause unacceptable noise levels. It was decided that this problem should be evaluated during the ECLSS Breadboard testing. The fan outlet louver design requires a angle cut machining operation which MSC/CSD feels could be much more simply done by a straight single angle cut. NR stated that this design created less pressure drop and was not an excessive machining operation. CSD still has doubts.
- 10. Attached are comments to the ASOCAR.

2 Pages of Product Approval Sheets Attached

NR UMCors

NASA Arry E. Bel

ECS, ECLSS, CGSS ASOCAR COMMENTS

3.1 ECS

- Add a guideline to indicate that the hatches and isolation valves will be closed during crew sleep periods.
- Add operational requirement to always maintain sufficient water in the waste and potable tanks for deorbit, entry and recovery.
- 3.3 CGSS
  - Change Cryogenic loading requirement to read. "Load Cryogenic oxygen and hydrogen to 100 per cent. Provide for maximizing Cryogenics available for in-flight comsumption considering 10 Soyuz launch opportunities on consecutive days with 5 CSM launch opportunities on consecutive days for each potential Soyuz launch".
- 4.1 ECLSS
  - 1) Change number of crew transfers required from three to four.

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### Strain 111 COP/DI-08 PDR

PAGE \_\_\_\_OF \_\_\_

MB MUKase MASA Larry C Bell

 

 TRAM HUTE ENVIRONMENTAL CONTROL SYS.
 PRODUCT APPROVAL

 COMMENTS THESE DWGS WERE NOT RELEASED AND LESS THAN 100% COMPLETE. APPROVAL

 CONTINGENT ON ADEQUATE DISPOSITION OF SUBMITTED RID'S.

PART NO.	un B	APPROVED	DISAPPROVED	RID NO.	REMARKS
₹52-610051	STRA P	Х			
₩52-610026	ELBOW	Х			
₩52-610030	FITTING	Х			SEE MINUTES COMMENT
₩52-610032	LOUVER	Х			
₩52-610033	FITTING	Х			
▼52-610034	SCREEN	х	_		
₩52-610035	SCREEN	Х			
<b>V</b> 52-610036	HOUSING	х			
₩52-610037	SCREEN	х			
V52-610019	CLAMP SET	х			
<b>▼52-6</b> 10021	CLAMP SET	Х		-	
<b>V52-610022</b>	ORIFICE	х			
₩52-610039	NOZZLE	Х			
₩52-610044	GUARD	Х			
₩52-610046	HINGE	Х			
₩52-961000 SH 2	ATMOS. CONTR. SYS	х			
₩52-961000 SH 3	EXTER. TANK INSTAL	Х			
<b>A V52-961000 SH 4</b>	VALVE INSTAL. TUN. NO. 1 VALVE INSTAL TUN. NO. 2	X X			
V52-961000 SH 6	FAN & LOUVERS	X			

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TAN MALE ENVIRONM	TENTAL CONTROL SYS.	EDEDING APP	<u>. OVAL</u>	NPC	Julass
				NABA	Darry & Bell
PARE NO.	M.C.27	APPROVED	DISAFFROVED	RID NO.	PENARKS
ME284-0187 PDC2	VALVE, CHECK	х			
ME273-0079 PDC 1	ORIFICE, INSERT	Х			
ME449-0045 PDC 3D	TRANSDUCER - ABSOLUTE PRESS	Х			
ME449-0121 PDC 4	TRANSDUCER - TEMP.	Х			
ME289-0041	GAUGE - DIFF. PRESS	Х			
ME284-0360 PDC 1	VALVE - SHUT OFF	х			
ME284-0147 PDC 5	VALVE - GLOBE	an com the state	X	4-8	
ME449-0129 PDC 3	TRANSDUCER - MASS FLOW	X			
ME265-0017 PDC 5	CAP, PRESS, DISCONNECT	X			
ME286-0034 PDC 1A	FILTER, OXYGEN	X			· ·
ME284-0150 PDC 4	VALVE, GLOBE	X			
ME284-0359 PDC 1B	REGULATOR ASSY, PRESSURE	X			
ME251-0009	DISC, RUPTURE	х			
ME492-0010 PDC 4	FAN	X			
ME284-0149 PDC 3	CABIN RELIEF VALVE	Х			
MF181-0133 PDC 1B	FMERGENCY 02 REG	Х			
ME273-0075 PDC 5	QD-MA LE	Х			
ME273-0074 PDC 2	QD-FEMALE	X			

### TEAM 5 - CRYOGENICS

### CO-CAPTAINS

NR: C. P. BOUMAN

NASA: H. WHITE

#### ATTENDEES

J.	Miller	RASPO-NASA
R.	Reysa	Boeing

The review included the products listed on the Product Approval Sheet, plus a review of the electrical schematics and operational procedures for the F/C and Cryogenic Systems. The review determined that the F/C & Cryo systems were within the ASTP baseline configuration and are acceptable as proposed.

Product Approval Sheet Attached

NR Albuman

NASA Aruf D./ white

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CRYOGENICS

001 111 COR/DULDO FOR

## PROPUS ADDRANT.

NR <u>CRBauman</u> MASA <u>Hugh A. Lukit</u>

PART NO.	MALE	APPROVED	DISAPPROVED	RID NO.	V	REMARKS
₹7-454200	EQUIPT. INSTALL. CRYOGENIC STORAGE SYST. COMPLETE	x				
<b>V37-454</b> 201	EQUIPT. SHELF INSTALL CRYOGENIC GAS STORAGE SYST. OXYGEN	x		<b>-</b>	X. <sup>1</sup>	
<b>V37-</b> 454259	EQUIPT. SHELF INSTALL - CRYOGENIC GAS STORAGE SYSTEM, SECTOR I	x				
<b>V3 -454258</b>	SHELF ASSY - EQUIPT, SECTOR I CRYOGENIC GAS STORAGE SYST.	x				
SOLAR DOCUMENT DTD. 11-8-72		X		n Line - D		
ASTP MEASUREMENT LIST		X				
0						

### TEAM 6 - ELECTRICAL POWER SYSTEM

#### CO-CAPTAINS

#### NR: H. HORII

NASA: W. SPEIER

#### ATTENDEES

W. Speier G. Johnson L. W. Greene H. F. Alcantar H. I. Horii E. N. Demarchi O. K. McCain NASA NASA MSC/Boeing NASA-RASPO NR/Elect. Sys. NR/Elec. Sys. NR/Elec. Instl.

### RID ITEMS

- (1) 6-1 DM Technical Requirements Spec Change (DM PDR)
- (2) 6-2 Cancelled (duplicate)
  (3) 6-3 CM/DM & DM/Soyuz Inte
- (3) 6-3 CM/DM & DM/Soyuz Interface Connector Color Coding (DM PDR)
- (4) 6-4 Drawing Discrepancies (111 CDR)
- (5) 6-5 Comm/TV Drag Thru Utility Connector (DM PDR)
- (6) 6-6 Gauge Callout Microdot Airlock Receptacles (111 CDR)
- (7) 6-7 Info for Cable Comm (DM PDR)

All EPS products provided were reviewed (see enclosed "Product Approval" Sheets 1-5), including schematics which were approved or disapproved. RID's were generated for disapproved products denoting the drawing discrepancies. Those products concerning electrical provisions of other systems were turned over to the appropriate team for review.

The DM requirements specification and Appendix D to SID64-1345 were reviewed and a RID was generated recommending updating of the DM specification.

A discussion was held with representatives of USA/USSR Working Group #2 concerning the mechanical aspects od the USA/USSR electrical interface. The following conclusions were reached:

1. Recommend that both connector halves of all DM/Soyuz interface connectors be provided by USSR with pigtail harness provided on the USA half of each connector. NR will define the length of these pigtails, in support of the No. 24 - Dec. 3 group meeting with the USSR.

Team 6 Minutes Page 2

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- 2. Requirement exists for each half of these connectors to have dust covers (manual covers preferred).
- 3. Mechanical lock will be required on crew-operated lever so that inadvertent disengagement of the "hot" connectors will not occur.
- 4. NR will define the number of USA connector halves required from USSR to support ground testing, flight spares, etc.
- 5. NR will study available USA connectors to determine feasibility of using USA connectors with the USSR mating mechanism concept.
- 6. The design of the mating mechanism should be such that redocking is not compromized by mechanical interference in the event that prior undocking was accomplished without manual disconnection of the connectors.

The "ASTP System Operations Compatibility Assessment Review" (ASOCAR) was reviewed and found acceptable. CSM 111 "H" update MCR changes were reviewed and approved.

5 Pages of Product Approval Sheets Attached

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PART NO.	NA:E	APPROVED	DISAPPROVED	RID NO.	REMARKS
EO M809606	EPS SYSTEM SCHEMATIC	ОК			
V34-945103	CRYO SYS SCHEM	NOT REVI	EWED BY EPS	TEAM	
<b>V34-</b> 945081	RCS SYS SCHEM		x	6-4	ERRORS ON SHEETS 7 & 8 IN CONN. NOMENCLATURE
₹734-945046	SPS SYS SCHEM	NOT REVI	EWED BY EPS	TEAM	
₹34-945049	EDS SYS SCHEM	ОК			
V34-945102	ELS/LES SYS SCHEM	N.	x	6-4	ERRORS IN ZONES 70, 71, 82 & 83
V52-945530	D.S. SYS SCHEM	ОК			
V52-	DM ELECT. SYS. SCHEM		xe		DRAWING INCOMPLETE; NOT IN ACCORDNANCE WITH PRESENTATION
V36-976029	D&C CONFIG CONTROL DWG	SEE D&C	TEAM MINUTES		
♥36-977111	PNL 1 SCHEM	SEE D&C	TEAM MINUTES		
V36-977112	PNL 2 SCHEM	SEE D&C	TEAM MINUTES		
V36-977174	PNL 274 SCHEM		х	6-4	ERRORS IN ZONE 18; INCOMPLETE
₹37-945204	SM PWR DIST. BOX SCHEM		Х	6-4	ERROR IN ZONE 5
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PART NO.	N.ME	APPROVED	DISAPPROVER	RID NO.	REMARKS
<b>V52-944010</b>	DM FEEDTHRU LAYOUT				INCOMPLETE
V52-922010	DM FEEDTHRU COVER LAYOUT				INCOMPLETE
V52-940100	DM EQUIP BAY LAYOUT				INCOMPLETE
<b>V52-940400</b>	CM/DM ELECT. INTERFACE LAYOUT				INCOMPLETE
<b>V52-</b> 976010	DM D&C PANELS LAYOUT	SEE D&C	TRAM MINUTES		
▼56–946202	CM TUNNEL LAYOUT		х	6-4	DOES NOT SHOW COAX AT FWD FEED- THRU
V36-914001	VIDEO TAPE RCDR LAYOUT	NOT REVI	EWED BY EPS	TEAM	
V36-976500	PNL 2 LAYOUT	SEE D&C	TEAM MINUTES		
V51-944001	DS EQUIP/WIRING LAYOUT				INCOMPLETE
<b>▼52-</b> 944005	DM/SOYUZ INTERFACE LAYOUT		x		SEE MINUTES
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EPS		PRODUCT APP	<u></u>	NR	Natti-
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PART NO.	IME	APPROVED	DISAPPROVED	RID NO.	J REMARKS
V36-445061	ESI - MDC	Х			
₹736-446042	ESI - FWD COMPT	x			
V37-440701	ESI - FWD BLKHD	NOT REVI	EWED BY EPS	TEAM	
₩37-447303	ESI - AFT BLKHD	NOT REVI	EWED BY EPS	TEAM	
V37-710501	CABLE INSTL - FUEL/OXID QTY	NOT REVI	EWED BY EPS	TEAM	an a
V37 <b>-7</b> 59515	INSTR INSTL	NOT REVI	EWED BY EPS	TEAM	*
₹37-440602	SM ELECT. EQUIP/WIRING INSTL.	NOT REVI	EWED BY EPS	TEAM	
₹37-451230			X	6-4	DOES NOT SHOW ADDED FUSES
V37-451231		x	i.	_	
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TTALL HAVEEPS	-	PRODUCT APPROVAL	
		NASA WMSpere	
PAPT NC.	EMA	APPROVED DISAPPROVED RID NO. REMARKS	
EO M803072 803074 803075 804376 804377 804378 808831 808832 808834 808835 808861 808863 809008 809010 809010 809011 809012 809013 809014 809018 809019 809020 809623 810058 808804		NOT REVIEWED BY EPS NOT REVIEWED BY EPS TEAM NOT REVIEWED BY EPS TEAM	
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E0 M808805 808806 808207 808808 808816 809023 808829 808837		OK OK NOT REVIEWED BY EPS TH OK NOT REVIEWED BY EPS TH NOT REVIEWED BY EPS TH NOT REVIEWED BY EPS TH OK	SAM SAM SAM	
65				

#### TEAM 7 - GUIDANCE & CONTROL

### CO-CAPTAINS

NR: G. D. Sandberg for C. K. Conrad

NASA: R. Ward

#### ATTENDEES

R.	Was	rd	NASA
G.	D.	Sandberg	NR G&C
J.	Ε.	Roberts	NR G&C
$L_{\bullet}$	F.	Herron	Delco

The pertinent G&C charts in ASTP "Blue Book" (AP72-30) were reviewed as they were not presented in the Introductory Briefing. It was emphasized that the CSM 111 G&N updates included those resulting from Apollo 16. Delco stated that all G&N ECP's were now authorized by the NASA and that all verbal only indications on the briefing chart (p. 40) should be changed to YES. NR indicated that the proposed docking simulations would take place for 2 months in June, July, and August of 1973 and the bending and loads simulation for 2 months in November and December of 1972. These proposed simulations would not support the March meeting with the Russians. The scheduling of the future analysis tasks is being coordinated with Dr. Ken Cox of the NASA. Minor updates to the ASOCAR which had been previously coordinated with the NASA SCS Subsystem Program Manager were reviewed. The changes in pre-launch criticality of two SCS measurements (CH3623X, CH324X) from M to MC were accepted.

NR Levald Southey for C. t. Consol

NASA Rober Ward

### TEAM 9 - MATERIALS & PROCESS

#### CO-CAPTAINS

NR: H. M. CLANCY

NASA: M. STEINTHAL

ATTENDEES

P. Ledoux

D. Lechelt E. McKenney

L. Gregory

G.E./PD9 SR&Q/Boeing SR&Q/Boeing PD9/GE

#### RID ITEMS

- Material Control Plan (accepted) (1)9-1
- (2)9-2 Fire Extinguisher Holes in Panel 250 (accepted)
- D/M Toxicity Test (withdrawn) (3)9-3
- Age Life Test of Polyester Urethane Material (accepted) (4) 9-4
- (5) 9-5 VCM Outgassing Test Attenuator/Gear Box Assembly (accepted)

### DISCUSSION

(1) A general discussion was held on (a) the material control plan, (b) fire extinguisher holes, (c) toxicityoligical tests, (d) age life of polyester urethane, and (e) VCM requirements. As a result RID's 1 through 5 were written.

J. NR ORIG. SIGN. H.M. CLANCY

NASA ORIG. SIGN. M. STEINTHA

- (2) A review was made of the usage of polyurethane cushion on the wire trays outside the DM. It was determined that the 2 1/8" x 3/4" foam strips were spaced 12 inches apart. As a result no potential propagated path exists. In the present configuration this is not considered a fire hazard. VCM tests are being conducted on the material.
- (3) A review was made of all parts used in the ECLSS. All new parts will have the best oxygen compatible material. NR will not provide new COMAT worksheets on components used in the ECLSS that are also used on the CSM. NR will only change effectivity on those part numbers.
- (4) It was mutually agreed between MSC and NR that NR would submit effectivity revision to all MUA's that have ASTP effectivity. NR will also add quantity changes to existing approved MUA's to include extra equipment inthe DM, for example the additional CCU, stowage bag zippers, and the restraint assembly.
- (5) It should be recognized that although many drawings were reviewed, the final acceptance of material usages is the COMAT worksheets. NR will submit the worksheets to MSC for review and approval as they are completed.
- (6) A review of the anodizing versus painting the inside of the DM was made. The briefing contained a reference to the use of Mystic PD-570 tape for masking for chem film touchups. This tape was verified to be low residue tape.
- (7) A discussion was held on the reuse of electrical panels on ASTP in regards to the Ladicote. There was some discussion whether the Ladicote would afford flammability protection after EVA, etc., of flight. NR agreed to investigate the concern and determine if a problem exists and make recommendations to NASA.

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Mater	ials	DODITION APP	POTAL	ΪR	H. M. Clancy
				NASA	M. W. Steinthal
PART NO.	NALE	APPROVED	DISAPPROVED	RID NO.	REMARKS
₹36-977174	(EPS) Network Board	*		-	No
₹734-945103	Schematic Electrical Cryogenic	4		-	
<b>V</b> 34 <b>-</b> 945046	Schematic SPS			_	
V37-440602	Electrical Equipment and Wiring				
SK-V34-030	Schematic Scientific Systems				
<b>V</b> 37 <b>-7</b> 50521	ME449-0030-9034 Transducer			-	
<b>V</b> 37 <b>-</b> 754515	Helium Panel				
<b>V</b> 37-750526	Signal Conditioner				
LS-0851	O <sub>2</sub> Mask Bag Assembly				
<b>LS-</b> 0850	Restraint Assembly Docking Module				
<b>V</b> 36-977111	Schematic Cmdr. Station MDC				
ME284-0187-0011	4.25 Check Valve				
ST285-0005 ME0001	Quick Disconnect				
ST285-0006	Quick Disconnect				
ME449-0055-1043	Dyna Science Pressure Transducer				
ME286-0034-0002	0 <sub>2</sub> Filter				
ME284-0360-0001	Carlton Control Regulator	ST.			
ME284-0359-0002	н н н	<b>∀</b> *			

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\*See Minutes Referring to Final Approval

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## CC: 111 CTC/CTC FG PG

## Materials

## LAVORGA TOURDES

H. M. Clancy

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MASA M. W. Steinthal

PART NO.	En 19215	APPROVED	DISAPPROVED	RID NO.	REMARKS
ST285-0005	Quick Disconnect	*			· ·
ME273-0079	Flow Control Orifice	T T			
DTT440107	Wire Tray			с.	
DTT440108	Wire Tray				
V36-976029	Panel Schematics				
SK-V34-112-1	Schematic Diagram J Box PCM Network				
SK-V34-110-1	Sch <b>e</b> matic Diagram Power Dist. Inst. System				
V34-111-4	RCS Quad ABC&D				
₩37-758526	Instrumentation Signal Conditioners				
₩37-444601	Electrical Equipment and Wiring Installation O <sub>2</sub> Shelf				
v57-448856	Panel Assembly - SPS GSE Access				
<b>V</b> 57 <b>-7</b> 10516	Coax. Cable - SPS Panel				
<b>V</b> 37 <b>-</b> 451231	Panel - Elect. Power Dist. Control Assy.				
V36-446106	Clamp-Wire Closeout Support- Docking Ring				
V36-446974	Strap-Wire Harness				
V57-940100	Layout-ASTP Docking Module Equipment Bay	*			

\*See Minutes Referring to Final Approval

### TEAM 10 - PROPULSION

#### CO-CAPTAINS

NR: E. A. FRENCH

NASA: H. WHITE

#### ATTENDEES

E. A. French M. Bloomberg S. Harvey NR/Populsion NASA/RASPO NASA/RASPO

NR presented the unique Propulsion System (SPS and RCS) design for ASTP and reviewed assembly and installation drawings and the documents listed on the attached Product Approval Sheets. This review of drawing included a comparison of Skylab and the ASTP configuration. The reuse of 3 RC-2 test hardware in the SM RCS shall be a subject of further discussion between the NR & NASA subsystem managers and the results presented to Program Management for approval.

2 Pages of Product Approval Sheets Attached

NR: 2. 1. French

NASA: dinha lichite
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TRAM MALE PROPU	LSION	PRODUCT APP	1 ** / T	MR	E.a. Junen
				NASA	dugh & Julio
PAPT 1.0.	INLE	APPROVED	DISAPPROVED	RID NO.	REMARKS
SPS					
V57-400201	SPS INSTL. COMPLETE SKYLAB				COMPARISON ONLY
V37-400301	SPS INSTL. COMPLETE ASTP	X			
V37-460201	HELIUM SYS. INSTL.	X			
V57-470201	OXIDIZER SYS. INSTL. SKYLAB				COMPARISON ONLY
₹37-470301	OXIDIZER SYS. INSTL. ASTP	X			
V57-480201	FUEL SYS. INSTL. SKYLAB				COMPARISON ONLY
₹7-480301	FUEL SYS. INSTL. ASTP	X			
RCS		8 JP	с		
V57-400106	PROPELLANT STORAGE MODULE	Х			
V57-400107	PSM PLUMBING	X			
V57-400110 & EOM 811950	MANIFOLD INSTL.	X			
V57-400111 & EOM 811903 EOM 812371	QUAD A&C TEARDOWN INFO ASTP REQUIREMENTS	X			
V57-400112 & EOM 811902 EOM 812372	QUAD B&D TEARDOWN INFO ASTP REQUIREMENTS	X			
ASTP FLIGHT MEASURE SPS & RCS	MENT REVIEW	x			

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	1.1.2	APPPOLED	DISAPPEOVED	RID NO.	REFARKS
ASTP SYSTEM OPERATI ASSESSMENT REVIEW MODULE OPERATIONS MATRIX	ONS COMPATIBILITY CSM & DOCKING REQUIREMENTS/COMPATIBILITY	x			
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## TEAM 11A - STRUCTURES

## CO-CAPTAINS

NR: D. E. KEITH

NASA: G. W. SANDARS

## ATTENDEES

Ε.	E. Cramp	Boeing/Houston
Ψ.	B. Shapbell	KSC/AA-SVO-3
Μ.	Clancy	NR
G.	Fluck	NR
F.	Thompson	NR
G.	Bazell	NR

Layouts and drawings were reviewed as shown on Product Approval document and approved at the existing level of completion. Some layouts indicated material unacceptable for stress corrosion requirements. These will be corrected in conjunction with M&P review. RID's DM CSRL-LLA2 and 3 were closed.

4 Pages of Product Approval Sheets Attached

NR 49-8 7 Will

NASA Sta dandars

eres: 5. <u>11A</u>	<u>CE</u> :	111 CTR/21	200 202		PICE 1 OF 4
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avie co.	E SAME	APPROVED	DISAPPROVED	RID NO.	REMARKS
V36-316450 <b>51</b> 52	COVER - DOCKING PROBE - ASTP FEED THRU CONNECTOR	X			
V36-931661	DES. L/O-FAIRING & BOND-ON REVISIONS, FWD TUNNEL, E.I. 111	Х			
V36-931662	COVER - DOCKING PROBE - ASTP FEED THRU CONNECTOR	X			
V36-931761	DES. L/O - AFT BULKHEAD FITTINGS VIDEO TAPE RECORDER	, x			
V36-933161 (2 Sheets)	DES. L/O - RACK SUPPORT, VIDEO TAPE RECORDER, AFT EQUIP. BAY (10% COMP.)	х			
V36-933261	DES. L/O - PANEL 274 SUPPORT STRUCTURE., Z <sub>c</sub> 4.824 to Z <sub>c</sub> 21.130, RHEB, AFT (10% COMP.)	X			
V52-930001 (4 Sheets)	ASTP STRUCT. ARRANGEMENT (HEAVY SKIN CONCEPT)	X			
V52-931401 (3 Sheets)	DOCKING MODULE HATCH LAYOUT	Х			
V52-931641	LAYOUT - DM FWD BULKHEAD, NO. 2	Х			
V52-931661 (3 Sheets)	LAYOUT - DM EXT. SPACE ALLOC.	X			
V52-933001 (Sheet 4 <u>ONLY</u> )	SYSTEMS MODULE STRUCT. LAYOUT	Х			
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PART NO.	NAE	APPROVED	DISAPPROVED	RID NO.	REMARKS
SK 062172	SLA/TRUSS ATTACH	x			
SK 81672	TRUSS FITTING, SLA ATTACH	X			
LO 101072	TRUSS FTGS. FOR DM ATTACH	x			
V53-932035	CORNER FITTING	X			
V53-932036	ASTP DM TRUSS CORNER JOINT	х			
V53-932037	TRUSS CENTER SECTION FITTING	x			
V53-325000	ASTP MODULE SPT., ASSY OF	х	5		
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FART NO.	ENM	APPROVED	DISAPPROVED	RID NO.	REMARKS
V52-933002	LAYOUT - DM SPACE ALLOCATION & EQUIP. INSTL. (INTERNAL) - CHORDWISE SYSTEMS MODULE	x			
V52-933011	DES L/O - FIRE EXTINGUISHER SUPPORT PROVISIONS	x			x
V52-310505	RING - DOCKING, TUNNEL NO. 1 DOCKING MODULE FORGING (ASSY OF)	X			
V52-316412 "A"	BULKHEAD - DOCKING TUNNEL NO. 2 DOCKING MODULE	X			
V52-310401	STRUCTURE - DOCKING MODULE X <sub>D</sub> 0,000 TO X <sub>D</sub> 105,000, ASSY OF	Х			
V52-310411	PLATE - TUNNEL FEED THRU, DOCKING MODULE PRESSURE	X			
V52-310416	PLATE - SEAL, TUNNEL FEED THRU, DOCKING MODULE, PRESSURE, ASSY OF	×			ORIGINAL MATERIAL CALLOUT CALL FOR 2024-T3 E.O. HAS HEEN RELEASED TO CHANCE TO T-81.
V52-310417	FITTING - TUNNEL FEED THRU, DOCKING MODULE VENT	Х			
V52-310419	PLATE - TUNNEL FEED THRU, DOCKING MODULE, ASSY OF	Х			
V52-310501	WELD ASSY - DOCKING TUNNEL NO. 1, DOCKING MODULE	Х		~	
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	STRU	CTURES	AGV LONGER		<u>vi</u>	D. E. KEITH DE TUTX
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	FART NO.	N.C.S.	APPROVED	DISAPPROVED	RID NO.	REMARKS
-	V52-310507	SKIN - DMOD, X <sub>D</sub> 0.00 TO X <sub>D</sub> 14.75, ASSY OF	X			
	V52-310511	RING - DMOD, X <sub>D</sub> 14.75	x			
	V52-310601	SHELL - DMOD, $X_D$ 15.75 TO $X_D$ 105.00, ASSY OF	Х			
	V52-310602	RING - DMOD, X <sub>D</sub> 105.00	Х			
	V52-310652	SHELL - DMOD, X <sub>D</sub> 14.75 TO X <sub>D</sub> 105.00	X			
	V52-316117	VENT - SUBLIMATOR, NON- PROPULSION, ASSY OF	X			
	V52-316118	SEAL - SUBLIMATOR VENT, NONPROPULSION, ASSY OF	х			E.O. RELEASED TO CHANCE T851 TO T81
	V52-316416	SEAL - FWD BULKHEAD	x			
	V52-316682	TANK - ASTP/ECLSS STORAGE SUPPLY	х			
	V52-316681	DOME - ASTP/ECLSS ROUGH MACHIN- ING	х			
	SK-11772	ECLSS BREADBOARD SIMULATED DM	x			
	V52-316680	TANK ASSY - STORAGE SUPPLY ASTP/ECLSS	X			
84	ASOCAR		<b>X</b> 	ан 1 тап	er tin stration	MUST BE UPDATED TO 10 PSI REQUIREMENTS

#### TEAM 11b - MECHANISMS

## CO-CAPTAINS

NR: G. THIES

NASA: R. WHITE

#### ATTENDEES

R.	White	NASA	G.	Thies	NR/SD
F.	McAllister	NASA	W.	McDonald	NR/SD
T.	Stafford	NASA	Β.	Brandt	NR/SD
R.	Colonna	NASA	D.	Nakashima	NR/SD

A software review of the ASTP hatch hinge, hatch stabilizer assy, and hatch open retention assy (V52-955020) was made. The function of all components was discussed in detail. Particular attention was paid to the hatch hinge articulation and the adequacy of the hatch open retention assy. No adverse comments were received and the designs approved.

A review was made of the ECS cabin pressure regulator control assemblies (layouts and mockup). No inadequacies were identified. This review included the decal affixed to the control base. The design concept and decal were approved for continued design and release to manufacture and for procurement. It should be noted that this approval was necessary since much of the pacing hardware is vendor supplied with attendant lead time requirements.

The CSM 111 updates were reviewed and approved.

Two Pages of Product Approval Sheets Attached

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11b	:20	111 00R/DM-	<u>. 19 P. 2</u> .		PAGE <u>1</u> of <u>2</u>
MECHAN	IISMS	PROPUST APP	CVAL	NR .	Il fica
				NASA	RC White
PARE NO.	NA E	APPROVED	DISAPPROVED	RID NO.	REMARKS
V36-553700	TUNNEL HATCH INSTL.	x			
701	TUNNEL HATCH GEARBOX	x			
730	TUNNEL HATCH HANDLE RELEASE	х			
740	TUNNEL HATCH HANDLE REL. GUIDE	X			
750	TUNNEL HATCH OVERLOAD BUNGEE	x		ц.	
760	TUNNEL HATCH LATCH	х			
776	TUNNEL HATCH DISCONNECT LEVER	x			
782	TUNNEL HATCH HOUSING SET	х			
784	TUNNEL HATCH DRIVE LINK	X			
₩52-550209	DM HATCH FITTING	x			
210	DM HATCH FITTING	х			
215	DM HATCH FITTING	Х			
216	DM HATCH FITTING	X			
217	DM HATCH FITTING	x			
218	DM HATCH BALL ASSY	х			* a
223	DM HATCH HINGE ASSY	х			
222	DM HATCH ARM ASSY	х			
<b>o</b> 219	DM HATCH STRIKER	x			

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THAT MANE MECHA	NISMS	Pacation App	LAVOC	NR .	1. Pica
				NASA	RIC White
PART NO.	NAE	APPROVED	DISAPPROVE	RID NO.	REMARKS
V52-955020	LAYOUT DM HATCH MECH.	X			
SK411867-2	LAYOUT ECS MANUAL OVERRIDE CONTROL CABLES	x			
<b>▼</b> 52–955931	LAYOUT DOCKING TARGET WITH 36" ARM EXTENSION	x			
DECAL ON M/U	NOMENCLATURE OF MANUAL OVERRIDE CONTROL DM ECS	X			
	ASOCAR	×			
				÷	
<b>0</b>					

## TEAM 11C - ORDNANCE

## CO-CAPTAINS

NR: C. H. LOWRY

NASA: H. WHITE

#### ATTENDEES

Co-Captains

The DM/Truss Guillotine was discussed and it was agreed that the destructive lot acceptance testing would include cutting specimens that contain the same number of wires, shields, etc. as it will have to on the ASTP mission. No new ordnance devices are required for this mission.

No documents to approve.

NR CEL

NASA Luft Di While

#### TEAM 12 - DOCKING SYSTEM

#### CO-CAPTAINS

NR: C. H. LOWRY

NASA: L. WILLIAMS

# A TTENDEES

W.	Creasy	NASA
W.	White	NASA
K.	Bloom	NR/SD

#### RID ITEMS

- (1) 12-1 Spring Thruster
- (2) 12-2 Attenuator Leak Detection
- 12-3 Passive Latch Indication
- 12-4 Loads for Excursion Envelopes
- (3) (4) (5) (6) 12-5 Alignment Pin Lock
- 12-6 Attenuator Thermal Protection
- (7) (8) 12-7 Interface Sensors
- 12-8 Attenuator Position Indicator

## DISCUSSION

ASOCAR was also reviewed and discussed.

1 Page of Product Approval Sheet Attached

NR Cal Jon

NASA - H. Zulliams

T ALL NO. 12

Con 111 Con/or-re 100

DOCKING SYSTEM

FRONCER APPOCIAL

PAGE <u>1</u> OF <u>1</u>  $\mathbb{NR}$ -MASA Lid Williams

PAND NO.		APPROVED	DISAPPROVED	RID NO.	PEMARKS
DTT-574401	STRUCT LATCH ASSY - ASTP		x	12-3	INDICATOR SYSTEM
<b>▼51-</b> 957440	STRUCT LATCH LAYOUT - ASTP		Х	12-3	ISSUE ONLY
<b>V51-957</b> 490	PRIMARY DRIVE ACTUATOR	X			
V51-957495	DESIGN LAYOUT - PASSIVE LATCH DRIVE, EMERG. REL.	Х			
DTT-57430	BODY MOUNTED LATCH ASSY	Х			
₹51-957420	DOCKING STRUCTURAL LAYOUT		х	12-7	IED 50004 WILL REVISE REQTS.
DTT-574200	BASE ASSY DOCKING MECHANISM		х	12-7	IED 50004 WILL REVISE REQRS.
DTT-514218	BASE STRUCTURAL ASSY - ASTP	Х			IED 50004 WILL REVISE REQTS.
DTT-574860	SWITCH - DOCKING SYS ASTP ASSY	Х			
<b>▼51-957</b> 465	LAYOUT - ATTENUATOR PASSIVE	Х			IED 50004 WILL REVISE REQTS.
DTT-574700	RING & GUIDE - ASSY ASTP		X	12-7	
DTT-574800	CAPTURE LATCH ASSY	Х		12-8	
DTT-574600	ATTENUATOR ASSY		X	12-6	
₹751-957420	MAXIMUM KINEMATIC GUIDE RING EXCURSIONS	X		12-4	
42					

# TEAM 13 - GROUND TEST

# CO-CAPTAINS

NR: J. CARNEY

NASA: R. CLICKNER

ATTENDEES

J. Carney R. Clickner H. Rodriguez NR/SD ASPO/PT4 RASPO/Downey

## RID ITEMS

(1) 13-1 Definition of Test Equipment Requirements

The Development and Certification Test Plan (Preliminary) for ASTP was not available for review but will be submitted to NASA, with approval scheduled before CDR. The need for a Test Management Plan document (MSC & NR duties and responsibilities) for DDT, ECLSS Breadboard, and the Thermal Vacuum Tests was discussed. It was agreed that working groups should be formed to generate these documents.

Format and contents will be similar to those generated for Apollo Acoustic Tests. ASPO-Test Division (PT) will initiate action and coordinate formation of working groups to support the scheduled activities.

NASA Russ Clink

# CSM 111 CDR/DM-DS PDR TEAM 15 - TEST AND CHECKOUT

### CO-CAPTAINS

#### NR - E. E. Dale

V Vahalla

## NASA - R. Clickner

067 2201

# Attendees NASA KSC

17.	Rebalka	NADA-IDO	001-5201
R.	B. Gaskins	NASA-KSC	867-2765
н.	W. Burton	NR-LO	867-7865
W.	B. Shapell	NASA-KSC	867-3281
н.	Row	NASA-KSC	867-2104
R.	Clickner	NASA-MSC	483-4549
R.	L. Connell	NASA-Dny	922-4361
E.	E. Dale	NR	922-4425
F.	C. Hirahara	NR	922-2210
Ζ.	B. Czarnecki	NR	922-1195
R.	L. Swanson	NR	922-1195

## **RID** Items

15-1

Test and Checkout Clarification

#### Discussion

The Test and Checkout Flow for CSM 111 M and the DM/DS as defined in the briefing "Blue Book," AP72-30, dated 8, 9, 10 November 1972, was presented and discussed. Minor changes were identified and concurred by NR/NASA.

The flow presented by NR was predicated on a Manned Altitude Chamber Test for the DM/DS at KSC. NASA concurred to the Test and Checkout Flow Plans defined in the briefing document (AP72-30) but is still evaluating the requirement for the DM Altitude Test.

The preliminary Downey TCRD, SCN #161, (less Paragraph 3.18 Sim Flt) was presented for NASA review. NASA will provide comments by NR by 11-30-72. NR will resubmit the SCN to NASA by 12-13-72 for formal approval.

NR agreed to submit a preliminary TCRD SCN for the DM/DS by DM/DS CDR.

Product Approval Sheets attached - None

le 11/9/12

Russ Clickner NASA Co-Captain

# TEAM 16 - RELIABILITY

## CO-CAPTAINS

NR: J. STUNGIS

NASA: E. SIEVERS

#### ATTENDEES

L.	Haycraft	MSC/SR & QA (Boeing)
A.	Racity	MSC QAO (Downey)
L.	G. Lanier	NR/Reliability

#### RID ITEMS

- (1) 16-1 DS Rigging
- (2) 3b-3 Shatterable Material

DISCUSSION

(See Attached Sheets)

NR Alin "/a/2

NASA E. C. Dievera 11-9-2

## RELIABILITY TASKS (GENERAL)

#### FMEA/SFPS STATUS

Preliminary FMEA/SFPS documents schedule was reviewed on the CSM and the DM. It was agreed that NR will provide NASA MSC with a list of CSM 111 and Docking Module Criticality I Single Failure Points at the CDR now scheduled for January 23, 1973. (The CSM 111 list will consist only of the differences between CSM 111 and the presently approved Skylab SFPS.) In addition, all Criticality II Single Failure Points which have been identified at the time of this CDR will be made available for NASA review. It is understood that at the time of this CDR, these data may not be formally documented in a Failure Mode and Effects Analysis: however, NR will attempt to complete this task at the earliest practical date.

#### DESIGN CRITERIA AND STANDARDS

The application of MSC Criteria and Standards (MSCM 8080) to ASTP was discussed. It was agreed that the currently effective Skylab standards, as defined in SD 72-CS-0031, will be reviewed and updated as appropriate for CSM 111. A complete review of all standards will be made for the Docking Module which will identify any non-applicable standards and those for which full compliance is deemed impractical. This will be completed and the results submitted to MSC as a proposed amendment to this specification by January 1, 1973.

## DEVELOPMENT AND CERTIFICATION TEST PLAN

The Docking Module Development and Certification Test Plan has been informally provided to MSC in draft form for review and comment. Comments have been provided to NR which are presently being incorporated. There are no known unresolved issues.

#### ASTP SYSTEM OPERATIONS COMPATIBILITY ASSESSMENT REVIEW

The draft ASOCAR document was reviewed by Reliability Division at MSC during the week of November 6, 1972. Comments were combined with Safety and Quality inputs and have been provided to the Special Assistant for SR & QA for transmittal to the ASTP Program Manager.

## EEE PARTS

The ASTP EEE Parts Program will be accomplished in accordance with the plan presently in effect for Skylab as described in SD 62-203B. The only significant EEE parts concern involves the identification and control of toggle switches for CM 111 and the DM. The total usage of toggle switches by serial number is not available at this time. The re-use panels from CSM 113 have the switch information previously supplied to MSC. The information for panels to be used from CSM 111, CSM 115, and CSM 115A is not yet available but should be compiled in the near future. NR stated that all switches will be X-rayed, and that all newly-installed switches will be -5000 series. Adequately screened switches will, therefore, be available for ASTP. The actual data (by serial number) will be reviewed when provided by NR.

## LIMITED LIFE COMPONENTS

Preliminary identification of limited life components were discussed at this review, and these data will be provided by NR as an update to MA0201-5695 in accordance with existing procedures.

## SUBSYSTEM TEAM REVIEW ACTIVITY

Reliability personnel participated in each of the subsystem team reviews. Technical concerns have been documented in the minutes of each team. Copies of the two Reliability RID's listed on the cover sheet are attached for information.

TEAM 17 - SAFETY

#### CO-CAPTAINS

NR: J. P. PROCTOR

NASA: O. LINDSEY

#### ATTENDEES

K.	W. Irwin	Boeing - Houston
J.	Brunues	Boeing - Houston

## RID ITEMS

- (1) 17-1 Burst Discs on  $N_2/O_2$  Tanks
- (2) 17-2 Hatch Disassembly Demonstration
- (3) 17-3 Lack of Fire Extinguisher Ports

#### DISCUSSION

- 1. Adequacy of NR cleaning and handling of N2 and O2 filters, a re-use item. MSC Safety concerns resolved.
- 2. Discussed ASTP Safety Plan with John Proctor, NR. Agreement reached that NR should propose deletion of certain reports to MSC and utilize manpower for ASTP hazard analysis. Proctor to formulate proposal.

Tinta NR

NASA CETEO 6

TEAM 18 - SPECIFICATIONS

#### CO-CAPTAINS

NR: J. MAIOCCHI

NASA: H. SCOTT

#### ATTENDEES

E.	Smith	NASA (Boeing)	(713) 488-0910
R.	Cook	NR	(213) 922-2566

Team reviewed approval comments on DM Requirement Specification and the CSM Tech. Spec. NR to distribute to specification holders. Team reviewed NASA/NR comments to SID64-1345, EIS, Appendix "D" for CSM 111 (and 119). Team presented preliminary copies of SCN's to the MML and TCRD. Team established schedule for all product submittals.

Schedule Attached One Product Approval Sheet Attached

NR J FMaissohi

NASA Hugh Statt

110. <u>18</u>

SPECIFICATIONS

פרק פרביור/פיים בבר יינים

PROPHET APPROVAL

NASA Hugh Scott

PAGE \_\_\_\_CF \_\_\_

PART 110.	MA E	APPROVED	DISAPPROVED	RID NO.	REMARKS
SD72-CS-0055	EIS - DOCKING MODULE	X			APPROVED BY LETTER PD5/L893-BT2-72-W8
SID64-1344	APPX "D" - TECH. SPEC.	x			APPROVED BY LETTER PD5/L893-BT2-72-8
SID64-1345	APPX "D" - EIS - PART I	x			FINAL REVIEW COMPLETE. NR TO INCORPORATE & SUBMIT FOR APPVL.
<b>SID65-164</b> 2	111 & DM DELTA MEASUREMENT REQUIREMENTS SCN	x			PRELIM. REVIEW. APPROVED FOR SUBMITTAL TO NASA.
SD67-1155	111 DELTA TCRD SCN	x			PRELIM. REVIEW. APPROVED FOR SUBMITTAL TO NASA.
SID64-1345 II	III DELTA PART II SCN	x		7	
SD72-CS-0055II	DM PART II	x			APPROVAL CONSISTS OF NEGOTIATED SCHEDULE FOR SUBMITTAL.
SD67-1155	DM TCRD REQUIREMENTS SCN	x	е. У		
SID66-230	grnd system SCN	X	-	ل ا	
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# TEAM NO. 18 - SPECIFICATIONS

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# ASTP SPECIFICATION SCHEDULE REQUIREMENTS

1.	SID 64-1345, Part I, EIS, Appendix "D" SCN	
	a) NR incorporate comments and submit for final approval b) MSC approval	11-21-72 11-30-72
2.	SID65-1642, Master Measurement List SCN	
	<ul> <li>a) NR to incorporate CDR comments and submit for final approval</li> <li>b) MSC approval</li> </ul>	11 <b>-21-72</b> 12 <b>-5-7</b> 2
3.	SD67-1155, TCRD, CSM 111 SCN	
	<ul> <li>a) NR to submit draft for review</li> <li>b) MSC comments back to NR</li> <li>c) NR submittal for final approval</li> <li>d) MSC approval</li> </ul>	11-22-72 11-30-72 12-13-72 12-22-72
4.	SID64-1345, EIS, Part II SCN, CSM 111	
	<ul> <li>a) NR to submit draft for review</li> <li>b) MSC comments back to NR</li> <li>c) NR submittal for final approval</li> <li>d) MSC Approval</li> </ul>	12-20-72 1-9-73 1-19-73 1-29-73
5.	SD72-CS-0055, DM EIS, Part II	
	a) NR to submit draft for review	4-1-73
6.	SD67-1155, TCRD, DM SCN	
	a) NR to submit draft for review	4-1-73
7.	SID66-230, Ground System SCN	
	a) NR to submit draft for review	4-15-73

## TEAM 19 - QUALITY

#### CO-CAPTAINS

NR: B. PARSHALL

NASA: G. FIEDLER

#### ATTENDEES

Η.	F.	Morgan	MSC	Quality	(Boeing)
G.	Α.	Fiedler	NASA	- Downey	y GARSO
D.	G.	Cox	MSC	Quality	(Boeing)
W.	Gr	een	MSC	Quality	(Boeing)
Β.	٧.	Parshall	NR		

#### GENERAL QUALITY REVIEW

The Quality Program Plan, SID62-154D, was reviewed in relation to quality and configuration controls for the modification of CSM 111 and design and fabrication of the DM-DS. Particular concern was expressed on the difficulty in maintaining quality and configuration control during the major disassembly and modifications being performed on CSM 111. It was agreed that existing procedures and controls effectively provide assurance that quality is maintained, as demonstrated by major modifications performed by NR-SD in the past (i.e., Cryo Modification) with no significant problems.

A question was asked on whether all CAR's and SAR's written after CSM 111 Phase III CARR, had been reviewed for impact on CSM 111. A review of the action and documents associated with the CAR/SAR review provided assurance that effective action had been taken. The quality action involved reviewing 742 CAR's written between Phase III CARR (3-12-70) and August, 1972.

A review of the ASTP System Operations Compatibility Assessment Review (A SOCAR) indicated that the rough draft is satisfactory from a quality standpoint.

The CEI for CSM 111 (Appendix D to SID 64-1345D) and Docking Module (SID 72-CS-0055) were reviewed and found compatible with existing quality requirements. A minor problem in relation to the revision letter listed for the Quality Program Plan, Revision "C" instead of "D", was coordinated with Team 18. The MSCM 8080, "Design Criteria and Standards", as implemented by SD72-CS-0031, have not been totally assessed for DM application. This item is discussed in Team 16 (Reliability) minutes.

Team No. 19 Minutes Page 2

DM-DS PRESSURE VESSEL

The engineering drawings applicable to the ASTP Gas Storage Tanks were reviewed by Quality Engineering. The drawings listed the necessary specifications controlling tank materials, heat treatment, machining, welding, inspection, finishing, cleaning, and quality control. In addition, Apollo paperwork requiring adequate pressure vessel records to be maintained and submitted to MSC was reviewed to establish that this record system would apply to the ASTP Gas Storage Pressure Vessels. No concerns were identified as a result of this review.

No specific quality items required approval.

NR BU Paulaol

NASA SetFerdine

# TEAM 20 - THERMAL

#### CO-CAPTAINS

#### NR: P. C. MERHOFF

#### NASA: J. T. TAYLOR

#### ATTENDEES

R. A.	G. W.	BROWN JOSLYN	MSC MSC	713/HU3-3676 713/HU3-3441
J.	Τ.	TAYLOR	MSC	/13/HU3-5589
W.	М.	MCDANIEL	NR	213/922-3423
D.	Α.	MCINTYRE	NR	213/922-4729
G.	MA	S	NR	213/922-2666
Ρ.	с.	MERHOFF	NR	213/922-4991
R.	н.	ZAJAC	NR	213/922-2720

#### RID ITEMS

20-1	SPS Oxidizer Sump Tank
20-2	RCS Helium & Primary Fuel Tank Sensors
20-3	Baseline Thermal Design
20-4	DM Thermal Design Trade-Offs
20-5	Docking System Thermal Protected
20-6	Docking Module Insulation Design
20-7	Definition of Docking Module Electrical Loads
20-8	SPS Helium Lines Temperature Limits
20-9	Maximum RCS Burn Profile Definition

The CSM 111 operational instrumentation was reviewed and discussed. RID 20-1 was written to add or relocate a temperature sensor to the SPS oxidizer sump tank aft dome. RID 20-2 was written to change the SM RCS primary fuel tank sensors from the high data bit system to the low data bit system. RID 20-8 was written to obtain new limits for the SPS helium lines downstream of the oxidizer and fuel heat exchangers.

PSM temperature response to cold conditions was reviewed to verify the NR position that a PSM heater was not required. The review did not reveal any data to contradict the NR position but MSC reserved final judgement until they can run a comparison computer evaluation at Houston.

MSC presented NR with a list of required information to allow MSC to support addition of the MSC man simulator math model into the NR DM math model. NR is presently evaluating the MSC request to determine when the required data can be ready. Team 20 - Thermal Minutes Page 2

New DM thermal requirements were discussed. These included:

- a. Timeline with four transfers instead of three and 30 minutes of double occupancy. New timeline attached to RID 20-3.
- Purge flowrate from Soyuz:
   CM Soyuz 50 liters/sec at 59F minimum and 77F maximum

CM-Two suit umbilicals at 10 CFM each and 55 + 5 F.

c. Equipment usage profile - attached to RID 20-7

Reviewed the Docking Module temperature response curves. MSC requested further trade studies to define make-up heat requirements via RID 20-4.

Reviewed Docking Module insulation blanket design concept. MSC did not like the netting being placed over the insulation blanket and felt that further definition of venting provisions was required. RID 20-6 was written requesting a future review of the blanket concept when the design was further advanced.

The docking system thermal analysis and design was reviewed. Several docking system components were shown to be outside of allowable temperature limits. RID 20-5 was written to obtain resolution of this problem.

Thermal aspects of the SOCAR document were reviewed.

1) Product Approval Sheet attached

NASA

P.C. merhoff

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THERMAL	<u> </u>	רככון שמוזהמכים	0.7AT	MR -	P.C. might
F437 00.	121B	APPROVED	DISAPPROVED	NASA RID NO.	PEMARKS
	CSM THERMAL ANALYSIS	X			
	CSM THERMAL DESIGN		х	20-1 20-2 20-8	SPS HELIUM LINE TEMP. REQUIRE- MENTS
				20-0	
	DM THERMAL ANALYSIS		X	20-3 20-4 20-6 20-7	NEW REQUIREMENTS
	DM THERMAL DESIGN		X	20-9	REQUIRED. USE OF NET OVER INSULATION IS NOT REQUIRED.
	DS THERMAL ANALYSIS	х			
	DS THERMAL DESIGN		x	20-5	PRESENT APPROACH DOES NOT MEET TEMP. LIMITS.
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## TEAM 21 - INSTRUMENTATION

#### CO-CAPTAINS

NR: C. J. ZEMENICK

NASA: F. A. ROTRAMEL

A TTENDEES

R.	Bleck	NR/SD	(213) 922-1135
L.	C. Muchow	NR/SD	(213) 922-1135
C.	H. Wiggins	NR/SD	(213) 922-3638
R.	E. Nulton	RASPO	(213) 922-4361

#### RID ITEMS

1.	No.	21-2	Chang	es to	Baseline	Measurement	Requireme	ents
2.	No.	21-1	02 Pa	rtial	Pressure	Measurement	Response	Time

#### DISCUSSION

- 1. The released specification (NE449-0135) and the EORQ for the  $0_2$  partial pressure measurement system were reviewed and accepted, subject to action on the RID concerning response time.
- 2. The specification (ME449-0136) for the CO<sub>2</sub> partial pressure measurement system was reviewed and accepted.
- 3. It is significant that both the above measurement systems are limited life items, and so will require special handling during implementation. Both can be refurbished by installation of a new sensor element. Instruments similar to both have been used previously on NASA programs. The O<sub>2</sub> system has been used in the airlock module and the CO<sub>2</sub> system has been used in the personal life support system.
- 4. The Docking Module quantity measurements were reviewed. The instrumentation to be used are pressure measurement systems, measuring pressure 50 to 1050 psia with calibration curves to convert pressure to per cent quantity. The cal. curves are not presently available.

Team #21 Minutes Page 2

- 5. Wiring diagrams and installation drawings were reviewed for all presently authorized measurements and accepted. E0's to these drawings were also reviewed.
- 6. The measurement requirements list was reviewed, and differences between it and the desired baseline identified by means of a RID. There were only nine (9) low bit rate channel assignments changed.
- 7. The hardware utilization list and the equipment list (MA0505-0067, dated 11-8-72) were reviewed and accepted with the necessary changes. To implement the measurements presently required, 115 additional pieces of instrumentation hardware are required. Fifty-three (53) of these will have to be purchased; the remainder will come from program spares or will be ASHUR'ed off Apollo spacecraft. All EOPR's needed for additional purchases are complete.
- 8. Screening of CM, SM and DM signal conditioners for oscillations in the frequency range of 100 to 400 mhz was accepted.
- 9. The ASTP Systems Operations Compatibility Requirements were reviewed and accepted except for DF9605P in Table 4.3 should be added to DM meter.
- 10. The NR proposal for the ASTP Docking Mechanism Structure Latch Indication was reviewed. It is technically acceptable, but implementation is still subject to program approval.

2 Pages of Product Approval Sheets Attached

NR 29 Zemeniek

NASA Traveli a. Kohame

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FRAM MARCE INSTRU	MENTATION	POCOUCE ADI	POVAL	NR NASA	Benemik Frank G. Rotrawel 11-9-72
PART NO.	NALE	APPROVED	DISAPPROVED	RID NO.	REMARKS
ME449-0135-0001	02 PARTIAL PRESSURE TRANSDUCER	4.	X	21-1	DETERMINATION OF TOTAL INSTRUMENT RESPONSE REQUIRED
ME449-0136-0001	CO2 PARTIAL PRESSURE TRANSDUCER	х			DOCUMENT.
SK-V34-975111	SCHEMATICS, INST. SYS.	x			
SK-V34-111-3 (B)	DM INSTRUMENTATION EXTERIOR	х		-	
SK-V34-112-1	SCHEMATIC DIAGRAM	х			
	PCM J-BOX NETWORK	×			
SK-V34-101-1	SCHEMATIC DIAGRAM POWER DISTRIBUTION INST SYS	X			
MA0505-0067	CSM INST. EQUIP. LIST	x			
SK-V34-111-9	SPS MEASUREMENTS ADDED	x			
SK-V34-111-8	PS M#1	x			
SK-V34-111-4 (A)	RCS - QUADS A, B, C, D	x			
SK-V34-111-030	SCHEMATIC DIAGRAM SCIENTIFIC SYSTEMS	x			i.
V37-750521 (B)	INSTRUMENTATION INSTL. TEMP. FUEL & OXIDIZER TANKS	X			
V37-758522 (B)	MOUNTING BASE - SIGNAL CONDITIONER, ASSY OF	X		A.	
₽ ₩57-756530	INSTRUMENTATION INST PROP STORACE MODULE	X			

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TEAN MANTINSTRU	UMENTATION	PRODUCT APP	POVAL	्रमञ्	C 30 m enve R
				NASA	Frank a. Rotrained 11-9-72
P.PT NO.	MAE	APPROVED	DISAPPROVED	RID NO.	REMARKS
₹77-758526	INSTRUMENTATION INSTL. SIGNAL CONDITIONERS	X			
V37-754515	INSTRUMENTATION INSTL. HELIUM PANEL	x			
V37-444601	ELECTRICAL EQUIP. & WIRING INSTL OXYGEN SHELF	x			
SID65-1642	MEASUREMENT REQ. LIST		X	21-2	NEED TO INCORP. LOW BIT ASSIGNMENTS, C&W ASSIGNMENTS & NAME CHANGE
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TYPE OF REVIEW: CDR	PEUTE	W IMEN DISPOSITATON	NUMBER 1-1	
VEHICLE CSM	REVIE	M TIEM DISPOSITION	DATE 11-9-72	
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
A. JOSLYN	NASA/MSC	THERMAL	MISSION	
DISCREPANCY PROBLEM	TITLE CSM BACKUP	DEORBIT REQUIREMENT		
CURRENT RCS DEORBIT F REQUIREMENT FOR TWO J	EQUIREMENT IS BASED ET DEORBIT CAPABILI	ON 4 JET CAPABILITY F. TY REQUIRES DEFINITION	ROM 130 NM.	
JUSTIFICATION	an ann an Air	and the second		
SKYLAB CSM REQUIREMEN SHOULD BE SAME OR RAT	ITS REQUIRE 2 JET RC IONALE FOR ANY DIFF	S DEORBIT CAPABILITY. ERENCES DEFINED.	ASTP REQUIREMENTS	
		/		
CHANGES TO SM CORN	IF REQUIRED.			
•	на на на 15 • В. • В.	NA SI	Dhuson GNATURE	
NASA TEAM CAPTAIN RECOM	MENDATION			
NASA CONCURS	1 · · · ·	•	9	
•		NASA S	SIGNATURE	
BOARD ACTION				
• , ·				
NASA AC ACTION:	TION TO DEFINE REQU	IREMENTS		
ACTIONEE NASA	APPRO	VED SIGNATURE OF BO.	ARD CHAIRMAN	
DUE DATE 11-22-72	Ödisappi	ROVED R.A.C.	long 103	
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TYPE OF REVIEW: PDR			NUMBER
VEHICLEDOCKING MODULE	REVIEW I	TEM DISPOSITION	
INITIATOR ORGAN	IZATION	SYSTEM	TEAM NAME
S. H. NASSIFF CD2	2	MISSION	MISSION REQUIREMENTS
DISCREPANCY PROBLEM TITLE	PRELIMINARY		
• OF	PERATIONAL DESCR	IPTION OF DM SUBSYS	$T^{*}$
NO DESCRIPTION OF DM SU FLIGHT PLANNING AND CRI	JESYSTEMS OPERAT	ION AVAILABLE FOR D R DISCUSSIONS WITH	EVELOPING PRELIMINARY USSR.
JUSTIFICATION			
INFORMATION NEEDED FO MARCH 1973.	DR DISCUSSIONS W	ITH USSR DURING MEE	TINGS PLANNED IN
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RECOMMENDATION			
PROVIDE INFORMATION BY	FEBRUARY 1. 19	73.	
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CONTRACTOR'S COMMENT			
		ан тараан ал ан ал ан	
NR CONCURS WITH NASA RE	COMMENDATION.	а. <sup>14</sup>	나는 아파
		2	0-10
		DC	Actuson
		NR SIG	JNATURE
NASA TEAM CAPTAIN RECOMMENDATI	ON		
NASA CONCURS			
	· •		
		* •	
•		NASA S	GIGNATURE
BOARD ACTION			
•			
NR PROVIDE PREL	IMINARY AOH INFO	RMATION BY 2/1/73.	
		, , , , , , , , , , , , , , , , , , , ,	· · · · · · · · · · · · · · · · · · ·
ACTIONEE	APPROVED	SIGNATURE OF BOA	ARD CHAIRMAN
NUL DUOD	I W MIROVED		• • • •
DUB DATE	DICIDDRAT		

TYPE OF REVIEW: PD	R			NUMBER 1-3
EHICLE DOCKING MODULE		REVIEW I	TEM DISPOSITION	DATE NOV. 9, 1972
NITIATOR R. WARD	ORGANIZATI A	ON SPO	SYSTEM MISSION	TEAM NAME MISSION REQUIREMENTS
DISCREPANCY PROBLEM	TITLE SUPPO	RT FOR JOI	NT ASTP MEETING I	N MARCH 1972.
REQUIREMENTS HAVE NOT ADDITIONAL CREW TRANS	BEEN ESTAB FERS, and/o	LISHED FOR r DM DOCKI	CANDIDATE EXPERIN NG TARGET INSTALL	MENTS, LAUNCH REDLINE, ATION.
		<i></i>		
JUSTIFICATION				
		:		
		ann an		
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd	OR CANDIDATI ) DEFINE CRY IMPACT OF A d DAY OF DOG	CREW TRA	NIS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS. THERMAL OR	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS.
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REG ACTUAL DOCKING.	OR CANDIDATI ) DEFINE CRI IMPACT OF A d DAY OF DOO QUIREMENTS 1	CREWICLA CREWICLA CREWITRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REG ACTUAL DOCKING.	OR CANDIDATI ) DEFINE CRI IMPACT OF A d DAY OF DOO QUIREMENTS 1	CGENIC LA FOGENIC LA CREW TRAI CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REC ACTUAL DOCKING.	OR CANDIDATI ) DEFINE CRI IMPACT OF A d DAY OF DOC QUIREMENTS 1	CGENIC LA FOGENIC LA CREW TRA CKED DUE TU FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	OR CANDIDATI ) DEFINE CR IMPACT OF A d DAY OF DOC QUIREMENTS 1	CGENIC LA COENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REC ACTUAL DOCKING.	MMENDATION	CGENIC LA CGENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F( CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REG ACTUAL DOCKING.	MMENDATION	CGENIC LA CGENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F4 CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REC ACTUAL DOCKING.	MMENDATION	CGENIC LA FOGENIC LA CREW TRAI CKED DUE TU FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS FU CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	MMENDATION	CGENIC LA CGENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REG ACTUAL DOCKING.	MMENDATION	CGENIC LA CGENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F4 CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	MMENDATION	CGENIC LA CGENIC LA CREW TRA CKED DUE TO FOR INSTAL	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ IGNATURE
POWER REQUIREMENTS FU CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REC ACTUAL DOCKING.	MMENDATION	CISAPPROVE	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN NR S	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ SIGNATURE
POWER REQUIREMENTS FU CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	OR CANDIDATI ) DEFINE CRI IMPACT OF A d DAY OF DOC QUIREMENTS I MMENDATION	DISAPPROVE	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN NR S	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS FU CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	MMENDATION	DISAPPROVE	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN NR S	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ
POWER REQUIREMENTS F4 CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	MMENDATION	DISAPPROVE	NTS UTILIZING AVAI UNCH REDLINES FOR NSFERS, WITH THE A D ECS, THERMAL OR LATION OF A DOCKIN NR S	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ IGNATURE
POWER REQUIREMENTS F4 CODE FROM THE CM. 2 MISSION. 3) DEFINE EITHER THE 1st or 2nd 4) DEFINE DESIGN REA ACTUAL DOCKING.	MMENDATION	DISAPPROVE	D SIGNATURE OF	A 12 DAY MISSION AND A 5 DAY DDITIONAL TRANSFER DURING OTHER SYSTEM CONSTRAINTS. G TARGET ON THE DM FOR SOYUZ DIGNATURE

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			THE DEGREE AND	NUMBER 2-2
VEHICLE DOCKING MODUL	E	REVIEW .	ITEM DISPOSITION	DATE NOV. 8, 1972
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME
M. W. HAMILTON	NA	SA	TELECOMMUNICATION	TELECOMMUNICATION
DISCREPANCY PROBLEM	TITLE	· · · · · · · · · · · · · · · · · · ·	Į	
•		VHF-FM T	RANSCEIVER	
DRAWING SK-V34-581- ANTENNAS AT OUTPUT (	L VHF-FM OF DIVID	ANTENNA CONFI	GURATION SHOULD SHOW	A POWER DIVIDER AND THREE
		-	·	
JUSTIFICATION				
PRELIMINARY SYSTEM I	DESIGN IS	5 TO PROVIDE F	OWER DIVIDER AND THRE	E ANTENNA SYSTEM.
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			1 1 1	
RECOMMENDATION				
סבר האמשייה היות היות	WINC DE	CHANCED TO SU	IN PROPOSED ANTENNA S	
RECOMPENDED TRAT DR	ANTING DE	CHANGED TO SH	IOW THOTOSED ANTENNA S	ISTEM CONFIGURATION.
CONTRACTOR'S COMMENT				
				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
WILL BE CHANGED TO S	SHOW POWI	ER DIVIDER.	·~~	
WILL BE CHANCED TO S	SHOW POWI	ER DIVIDER.		
WILL BE CHANGED TO S	SHOW POWI	ER DIVIDER.	6.2	- 2
WILL BE CHANGED TO S	SHOW POWI	ER DIVIDER.	C Z e NR SIG	moniek
WILL BE CHANGED TO S	SHOW POW	ER DIVIDER.	<u> </u>	menick
WILL BE CHANGED TO S	SHOW POWN	ER DIVIDER.	C Z e NR SIG	menick
WILL BE CHANGED TO S	SHOW POWE	ER DIVIDER.	<u>CZe</u> NR SIG	maniek
WILL BE CHANGED TO S	SHOW POW	ER DIVIDER.	NR SIG	MATURE IGNATURE
WILL BE CHANGED TO S	SHOW POWE	ER DIVIDER.	C 2 e NR SIG	MATURE
WILL BE CHANGED TO S	SHOW POW	ER DIVIDER.	C Z e NR SIG	MATURE IGNATURE
WILL BE CHANGED TO S NASA TEAM CAPTAIN RECON BOARD ACTION IMPLEMENT PER CONTRACT	SHOW POWE	ER DIVIDER.	C 2 e NR SIG	MATURE
WILL BE CHANGED TO S NASA TEAM CAPTAIN RECON BOARD ACTION IMPLEMENT PER CONTRACT	SHOW POWE	ER DIVIDER.	C 2 e NR SIG	MATURE
WILL BE CHANGED TO S NASA TEAM CAPTAIN RECON BOARD ACTION IMPLEMENT PER CONTRACT	SHOW POWE	ER DIVIDER.	NR STO	MATURE NATURE
WILL BE CHANGED TO S NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEMENT PER CONTRACT	SHOW POWE	ER DIVIDER.	ED SIGNATURE OF BOA	MATURE NATURE IGNATURE RD CHAIRMAN

CDR		<b>5)</b> 7) 7 7 7 7 7	TARA DIGDOGIATON	NUMBER 2-3
VEHICLE CSM 111		REVIEW ITEM DISPOSITION		DATE NOV. 8, 1972
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME
P. WESTMORELAND	NA	ASA	T.V.	TELECOMMUNICATIONS
DISCREPANCY PROBLEM	TITLE			
•		T.V. SY	STEM SCHEDULE	· · · ·
NR TO PROVIDE COMPLE (A) DESIGN RE (B) VTR, CAME (C) GFE HARDW (D) TESTING	TE T.V. LEASE N RA, CAM ARE NEE	SYSTEM SCHEDU EED DATES ERA STOWACE & D DATES	LE SHOWING: MONITOR, PRELIM. ICD I	(E) OTHER MILESTONES DATES
JUSTIFICATION SCHEDULE NEEDED SO T		& MSC CAN WORK	TO COMMON NEED DATES	
SCHEDULE NEEDED SO I	HAI NR	a NOC CAN WORK	TO COMMON NEED DATES	
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RECOMMENDATION				
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CONTRACTOR'S COMMENT				
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E LON OF F	BE COMPILED AND REQUIREMENTS BY	PROVIDED TO MSC/NASA NASA/MSC.	TWO WEEKS AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E LON OF F	BE COMPILED ANI REQUIREMENTS BY	) PROVIDED TO MSC/NASA [ NASA/MSC.	TWO WEEKS AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E LON OF F	BE COMPILED ANI DEQUIREMENTS BY	D PROVIDED TO MSC/NASA	TWO WEEKS AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E LON OF F	BE COMPILED ANI REQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR STG	emoniek NATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E	BE COMPILED ANI EQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SGG	TWO WEEKS AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E ION OF F MENDATI	BE COMPILED ANI REQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SQC	emonick NATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E LON OF F MENDATI	BE COMPILED ANI REQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SGG	TWO WEEKS AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI	E WILL E ION OF F ION OF F	BE COMPILED ANI REQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SQC	two weeks after
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM	E WILL E LON OF F MENDATI	BE COMPILED ANI REQUIREMENTS BY	PROVIDED TO MSC/NASA NASA/MSC. <u>C 3</u> NR SQC	emonick MATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM	E WILL E	BE COMPILED ANI REQUIREMENTS BY	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SEC	emoniek MATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE 1	E WILL E ION OF F MENDATI	BE COMPILED AND BEQUIREMENTS BY CON SYSTEM BY 11-30	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SGG	emoniek MATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE 1	E WILL E LON OF F MENDATI	BE COMPILED AND BEQUIREMENTS BY CON CON SYSTEM BY 11-30	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SEC NASA (S D-72.	two weeks AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE D	E WILL E LON OF F MENDATI	SYSTEM BY 11-30	D PROVIDED TO MSC/NASA I NASA/MSC. <u>C Z</u> NR SQC NR SQC NASA (2)	emoniek MATURE
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE 1	E WILL E LON OF F MENDATI	BE COMPILED AND REQUIREMENTS BY CON SYSTEM BY 11-30	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR SEC NR SEC	wo weeks AFTER
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE I	E WILL E LON OF F MENDATI	SYSTEM BY 11-30	D PROVIDED TO MSC/NASA NASA/MSC. <u>C 2</u> NR SQC NR SQC NASA (2) D-72.	RD CHAIRMAN
T.V. SYSTEM SCHEDULE DEFINITION & PROVISI NASA TEAM CAPTAIN RECOM BOARD ACTION NR PROVIDE SCHEDULE I ACTIONEE NR	E WILL E LON OF F MENDATI	BE COMPILED AND EQUIREMENTS BY ON SYSTEM BY 11-30	D PROVIDED TO MSC/NASA NASA/MSC. <u>C Z</u> NR STO NASA (S D-72. D-72.	RD CHAIRMAN

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WARD PROPERTY.
TYPE OF REVIEW: CDR	1		NUMBER 2-4
VEHICLE CSM 111	REVIEW 1	ITEM DISPOSITION	DATE NOV. 8, 1972
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
E. LATTIER	NASA	TELECOMMUNICATION	TELECOMMUNICATION
DISCREPANCY PROBLEM	TITLE		The second se
•	USBE FREQUEN	ICY RESPONSE	
FREATENCY RESPONSE	אסידי ארב ארביון ווו אייי איי	NSMTTTER TS UNKNOWN	
PREQUENCI RESTONSE C		MOMITIER IS ON NOWN.	이 가지 유가 가지 않는다. 이 지지 않는 것은 것은 것은 것은 것이 있는다. 이 같은 것은 것은 것은 것은 것은 것은 것이 있는다.
		e d'a d'a d'a da	가슴 가지 않는 것이 있는 것이 있었다. - 사람은 것이 편집 것이 있는 것이 있는 것이 있는 것이 있는 것이 있다.
JUSTIFICATION		and the second sec	Electric de la companya de la company
FREQUENCY RESPONSE F REQUIREMENTS. IF RE	EQUIRED TO ESTABLISH SPONSE NOT ADEQUATE,	SUITABILITY OF TRANSM MAY REQUIRE FLYING SK	ITTER TO SUPPORT VIDEO YLAB REUSE EQUIPMENT.
	• ×	<i>.</i>	
RECOMMENDATION			
DETERMINE BY <b>IN-HOUS</b> USE AS IS, OR USE BE THE RELIABILITY CONS	SE TESTS, THE CSM 111 ST OF PREVIOUSLY TEST SIDERATIONS OF USBE SU	USBE FREQUENCY RESPON ED UNITS. (FACTOR IN BJECTED TO 28 DAY MIS	SE. BASED ON TEST RESULTS, DECISION TO REFLY, SION.)
CONTRACTOR'S COMMENT			
VIDEO SYSTEM DESIGN WHICH HAVE BEEN VERJ CHANGE OF ONE WATT V CHANGE OUT AT KSC PF	CAN BEST BE SATISFIED FIED TO PROVIDE 2.0 M NS. 1/8 WATT. RECOMME RIOR TO 0070.	) BY REUSE OF SKYLAB U HZ RESPONSE & WHICH H ND DOWNEY C/O USING T	SBE (116, 117, ETC) AVE AN INPUT RESISTOR HE CM 111 USBE WITH
		NR SIC	2 cmu, u k
NASA TEAM CAPTAIN RECOM	MENDATION		F. M. Martinez, C. Levin, Phys. Rev. Lett. 80, 100 (1999).
	ł		de la construcción de la
	•		
		NASA S	IGNATURE
BOARD ACTION	Alexandra de la constante de l El constante de la constante de El constante de la constante d		
IMPLEMENT PER CONT	RACTOR'S COMMENT.		
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ACTIONEE	R APPROVE	ED SIGNATURE OF BOA	RD CHAIRMAN

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NUMBER TYPE OF REVIEW: PDR 2-5 REVIEW ITEM DISPOSITION VEHICLE DOCKING MODULE DATE NOV. 8, 1972 INITIATOR ORGANIZATION SYSTEM TEAM NAME O. GRAHAM NASA TELEVISION TELECOMMUNICATION TITLE DISCREPANCY PROBLEM COMMON T.V. CONNECTORS COMMON CONNECTORS DO NOT PRESENTLY EXIST IN THE T.V. SYSTEM. THIS WILL REQUIRE MULTIPLE JUMPER CABLES. JUSTIFICATION STANDARDIZE ON ONE COMMON T.V. CONNECTOR ELIMINATING NEED FOR JUMPER CABLES. RECOMMENDATION USE MICRO-DOT WITH AL SHELL FOR EACH PLUG LOCATION (I.E., AT EVERY POINT THAT THE T.V. CAMERA PLUGS INTO THE TELEVISION DISTRIBUTION SYSTEM USE MICRO-DOT WITH AL SHELL). MICRO-DOT #A43EH - 14CPN - 175 & AIRLOCK #9434-01 CONTRACTOR'S COMMENT THIS REQUIREMENT IS A CHANGE TO VIDEO SYSTEM BASELINE OF PDR #2 & #3. A CHANGE ESTIMATE REQUIRES CONNECTOR AVAILABILITY DETERMINATION, A CHANGE TO CSM 111 INTERFACE AND CHANCE IN EXISTING DM PANEL 820 & CHANCE IN SOYUZ "J" BOX DESIGN. 2 Emenie SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION NASA CONCURS WITH CONTRACTOR COMMENT. Westmailed NASA SAGNATUR BOARD ACTION Implement in conjunction with the modification to the TV. System, as defined in the Minutes of this Board Meeting. (See RID 2-8) ACTIONEE SIGNATURE OF BOARD CHATRMAN (X) APPROVED 11/10 DUE DATE DISAPPROVED 109

COMMON TY CONNECTORS



TYPE OF REVIEW: CDR	n na shekarar Tarafa 19	DINITIAL TON	NA DISDOGIMION	NUMBER 2-7
VEHICLE CSM 111		REVIEW 111	IN DISPOSITION	DATE NOV. 8, 1972
INITIATOR	ORGANIZATION	1 2	SYSTEM	TEAM NAME
O. GRAHAM	NASA	йн Ц. 1	TELEVISION	TELECOMMUNICATION
DISCREPANCY PROBLEM	TITLE T.V.	ICD'S		
ICD'S DO NOT EXIST H CAMERA AND MONITOR.	FOR THE T.V. S	YSTEM, I.E	., AMPLIFIER, TAP	E RECORDER, AND TELEVISION
JUSTIFICATION				
THE DOCUMENT WILL B	E REQUIRED TO	ASSURE PRO	PER SYSTEM PERFOR	MANCE.
	·*			·
RECOMMENDATION	· · · · ·			
DIRECT NR TO PREPARI TO PREPARE INDEPENDI ICD'S)	E PRELIMINARY ENT ICD'S FOR	ICD'S FOR THE T.V. S	NASA REVIEW BY DE YSTEM, I.E., DO N	C. 15, 1972. (DIRECT NR OT COMBINE WITH OTHER SYSTEM
CONTRACTOR'S COMMENT				
IF DIRECTED, NR WIL OF CM 111 CDR & DM	L PROVIDE PREI PDR OF 11-10-7	LIMINARY CO	PIES BY 12-30-72	BASED ON CONFIGURATION BASE
•			C NR (3	Ignature
NASA TEAM CAPTAIN RECO	MENDATION			
	<b>u</b> l		5 · · · · · · ·	
	•			BIGNATURE
BOARD ACTION				
PROVIDE ICD BY UTI DUE 12	LIZING EYSTEM -30-72	5 DRAWINGS	AND INTERFACE CON	TROL STAMP.
	.:			
ACTIONEE NR				
NICE AND NICE		APPROVED	SIGNATURE OF H	BOARD CHAIRMAN

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TYPE OF REVIEW: PDR	YPE OF REVIEW: PDR		REVIEW ITEM DISPOSITION		NUMBER 2-8
VEHICLE DOCKING MODULE		REVIEW .	LTEM DISPOSIT	ION	DATE NOV. 8, 1972
INITIATOR	ORGANI	ZATION	SYSTEM		TEAM NAME
E. LATTIER	TCSD	C. Sime compose no compose	TELECOMMUNIC	ATION	TELECOMMUNICATION
DISCREPANCY PROBLEM	TITLE		• .		
n 2 an 1997 - Albert Aland, Albert Alandar 2		VIDEO CONNEC	TORS FOR SOYU	Z J-BOX	2000 - 20
PROVID <del>ING</del> T.V. CAMER RECOMMENDED PANEL LA	A-VEHIC YOUT, E'	LE INTERFACE C IC.)	ONNECTORS AND	DESIGN 1	NFO (PIN ASSIGNMENTS,
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PRESENT DESIGN INCLU NEW DESIGN - ONE CON	DES TWO NECTOR	CONNECTORS -	ONE VIDEO & O	NE POWER	CONNECTOR.
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ACTIONEE	- 2 2 - 72	APPROVE ODISAPPRO	D SIGNATUR	e of boar	D CHAIRMAN

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CHANGES TO T.V. SYSTEM BASELINE (NR)

· REPLACE DM ROTARY CO-AX SWITCH WITH GFE SWITCH/AMPLIFIER IN DM

· DELETE 2 CO-AX SWITCHES IN CM

· DELETE 4 SWITCHES ON PANEL 274 IN CM

· DELETE VIDEO MONITOR JACK ON PANEL 231 IN CM

· PROVIDE SINGLE VIDEO CABLE FROM CM/DM INTERFACE TO VTR AND FROM VTR TO PMP

• DISCONNECT PMP-GSE OUTPUT AND PROVIDE THIS OUTPUT TO THE CSM MONITOR AT THE VTR BRACKET

· PROVIDE MICRODOT CONNECTORS AT ALL CAMERA PORTS

VTR CHANGES (RCA)

w

• JUMPER AROUND EREP AMPLIFIER

ZELABEL

• RELABLE 2 EREP SWITCHES

. ADD PLAN/FAST FORWARD SWITCH TO VTR

· CHANGE 1 INPUT CONNECTOR TO MICRODOT/AL

ASTP VIDEO CAL SYSTEM





DOCKING MODULE - DOCKING SYSTEM PDR CABLE COMMUNICATION & VIDEO

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	DIVITI	THEN DECROSTATON	NUMBER 3A-1
VEHICLE DOCKING MODULE	REVIEW	TIEM DISPOSITION	DATE NOV. 8, 1972
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
R. HILL	NASA	CREW EQUIPMENT	CREW EQUIPMENT
DISCREPANCY PROBLEM	TITLE HATCH/02 MASK BA	G INTERFERENCE	FALLY REFERENCES
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FREE ACCESS TO PASSE	NGER O2 MASK BAG BLO	CKED WHEN DM HATCHIS	OPEN. AL ANALAS AND AL AND
JUSTIFICATION			
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DECOMMENDATION			na mana antar an Canton Canton Canton ang ang ang ang ang ang ang ang ang an
RECOMMENDATION			
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CONTRACTOR'S COMMENT			
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NASA TEAM CAPTAIN RECON	MENDATION a	NR SI	GNATURE
NASA TEAM CAPTAIN RECON	MENDATION	NR SI	IGNATURE
NASA TEAM CAPTAIN RECON BOARD ACTION	MENDATION	NR SI NASA	GNATURE
NASA TEAM CAPTAIN RECON BOARD ACTION	MENDATION 7	NR SI NASA	GNATURE
NASA TEAM CAPTAIN RECON BOARD ACTION Implement.	MENDATION a	NR SI NASA	GNATURE
NASA TEAM CAPTAIN RECON BOARD ACTION Implement.	MENDATION 1	NR SI NASA	GNATURE
NASA TEAM CAPTAIN RECON BOARD ACTION Implement. ACTIONEE NR	MENDATION	NR SI NASA VED SIGNATURE OF BO	GNATURE SIGNATURE

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TYPE OF REVIEW: PDB			NUMBER	34-2	
VEHTCLE DOCKING MODULE	REVIEW ITEM	DISPOSITION	DATE	Nov. 8	1972
INITIATOR R. HILL	ATION NASA SY	STEM CREW EQUIPMENT	TEAM NAME	CREW EQUI	PMENT
DISCREPANCY PROBLEM TITLE	DM/SOYUZ TRANSF	ER BAG LID			13.41.200
LS-0849 DM/SOYUZ TRANSFER BAG L HARDWARE IN FRONT COMPARTMENT W	ID MUST BE FULLY ILL REQUIRE ADDI	OPENED TO GAIN ACC TIONAL INTERNAL RES	ESS TO REAR TRAINTS.	COMPARTME	NT.
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USTIFICATION OPENING SMALLER AREAS WILL BE M	ORE CONVENIENT A	ND WILL EXPOSE ONLY	DESIRED HA	RDWARE.	entaŭ Statin
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ECOMMENDATION	~				and the second second
PROVIDE SECTIONED COVER WITH VE	LCRO OR SNAP FAS	TENER.			14. A.M.
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ONTRACTOR'S COMMENT			,		* 
ONTRACTOR'S COMMENT NR CONCURS - A CONCEPTUAL SKETC	H WILL BE FURNIS	HED TO NASA/MSC FOR	REVIEW BY	DEC. 15, 1	972.
ONTRACTOR'S COMMENT NR CONCURS - A CONCEPTUAL SKETC	H WILL BE FURNIS	HED TO NASA≁MSC FOR	REVIEW BY	DEC. 15, 1	972.
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ONTRACTOR'S COMMENT NR CONCURS - A CONCEPTUAL SKETC ASA TEAM CAPTAIN RECOMMENDATION	H WILL BE FURNIS	HED TO NASA, MSC FOR NR SIGN	A REVIEW BY	DEC. 15, 1	972. 1972.
ONTRACTOR'S COMMENT NR CONCURS - A CONCEPTUAL SKETC ASA TEAM CAPTAIN RECOMMENDATION	H WILL BE FURNIS	HED TO NASA, MSC FOR NR SIGN	A REVIEW BY	DEC. 15, 1	972.
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ONTRACTOR'S COMMENT NR CONCURS - A CONCEPTUAL SKETC ASA TEAM CAPTAIN RECOMMENDATION A OARD ACTION Implement per Con	H WILL BE FURNIS	HED TO NASA MSC FOR NR SIGN NASA SIG	REVIEW BY	DEC. 15, 1	972.

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TYPE OF REVIEW: PDR	REV	NOTEL TEEM DISPOSITE WEEK	3a-3
VEHICLE DM		TEW TIEF DIDIOUTITON	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
R. HILL	NASA	CREW EQUIPMENT	CREW EQUIPMENT
DISCREPANCY PROBLEM	TITLE	and the second sec	
•	DELETE CREW	STATION ICD - DM	
		and the second	1
		•	
NO REQUIREMENT NOW E	XISTS FOR ICD AS	LISTED IN DM PDR HANDOU	T, PAGE 12.
JUSTIFICATION		-	
REQUIREMENT FOR DEFI	NITION OF CREW S	TATION ENVELOPE AND CREW	MAN REACH ENVELOPE NOT
APPLICABLE SINCE DEL	ETION OF PREBREA	TH REQUIREMENT.	
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RECOMMENDATION		A SECTION REPORT OF A	
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DELETE TOD REQUIREME	NI.		
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CONTRACTOR'S COMMENT	5N1.		
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TYPE OF REVIEW: PDR		BEUIEW T		CDOCTOTON	NUMBER 3A-4
VEHICLE DOCKING MODULE		REVIEW 1	LTEM DI	SPUSITION	DATE NOV. 8, 1972
INITIATOR	ORGANI	ZATION	SYSTE	M	TEAM NAME
F. MC ALLISTER	N	ASA	(	REW EQUIPMENT	CREW EQUIPMENT
DISCREPANCY PROBLEM	TITLE		•	erretteretissis retroeel or through the	
na nag na naganananan nagananan naganananan naganananan naganananananananananananana		SOYUZ DRAG THRI	U ELECI	CABLE CM ROUT	ING/HOLD DOWN
NO ROUTING OR HOLD DRAG THRU (DM TO C	) DOWN P. M) ELEC	ROVISIONS IN TH TRICAL CABLE.	HE CM I	FOR USE BY THE R	RUSSIANS FOR THEIR
JUSTIFICATION					
CREWMAN CONTROL &	RESTRAI	NT OF CABLE DU	RING M	ISSION.	
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			: 		e e e e e e e e e e e e e e e e e e e
RECOMMENDATION					
PROVIDE ROUTING AN	D CABLE	HOLD DOWN. RI	EVIEW A	AT CDR	
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CONTRACTOR'S COMMENT					
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				NASA SIC	GNATURE
BOARD ACTION		************************************			n an an an Article Construction and an
NR PROVIDE CONCEPT	'S AT DM	CDR.		÷	
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ACTIONEE		APPROVET		GNATURE OF BOAR	D CHAIRMAN
DUE DATE DU CDD		DISAPPROV	ÆD	R.A.C.l	Anna 19A
DM CDR				N I CAPE	In In

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TYPE OF REVIEW. PDR.			NUMBER		
THE OF HEVER' TEN	REVIEW :	ITEM DISPOSITION	)A-)		
VEHICLE DOORING HODOLL	PCANTZARTON	CVCTFW	DALE NOV. 8, 1972		
	COD	OPELL FOUTDMENT	ODELL POLITOMENT		
R. HILL		CREW EQUIPMENT	CREW EQUIPMENT		
DISCREPANCY PROBLEM T	ITLE	•			
	. ROUTING & RETENTION OF O2 HOSE FROM CM TO D				
NO METHOD SHOWN TO F	RETAIN O2 HOSES AT C	M TO DM INTERFACE NE	AR DM PANEL 803.		
·		·	-		
JUSTIFICATION REFERENCE ASOCAR DOC SECOND PARAGRAPH 3.1	CUMENT, DATED 8 NOV. L.2.4 "DOCKED OPERAT	. 1972, PARA. 4.1.2.3 TIONS"	B "DOCKED OPERATIONS",		
THE CM ECLSS IS UTII WHEN TUNNEL #1 HATCH	LIZED FOR ATMOSPHERI H IS OPEN.	IC NEUTRALIZATION IN	THE DM DURING PERIODS		
RECOMMENDATION					
PROVIDE RETENTION OF CONNECTOR PROTECTION INTERCONNECT.	7 2 EACH O <sub>2</sub> SUPPLY H N. THE RETURN HOSE	HOSES NEAR PANEL 803 OF ASSY IS TO BE PLU	AND PROVIDE SUIT HOSE IGGED BY USE OF 02 HOSE		
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COMPRACTION IS COMPANY					
ND WILL DRODOSE HOSE			ותידשת אומפא בע זים זו מים		
WIT WITH THOT OUT THOT	I I I I I I I I I I I I I I I I I I I		10E11 10 NAGA BI 12-1)-72.		
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	U.S. 199	NR SI	GNATURE		
NASA TEAM CAPTAIN RECOMME	ENDATION				
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•		NASA	SIGNATURE		
BOARD ACTION					
TMPLEMENT PER CONTRA	CTORIS CLOSEOUT	1			
THE LEADENT FIRE CONTRA	UTOR O UNODOUT.				
ACTIONEE		SIGNATURE OF BO	DARD CHATRMAN		
NK	APPROVI				
DUE DATE 12/15/72	DISAPPRO	OVED K2 H.C	olonna 121		

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THE OF DEPITER OF	· T		NUMBER
TIPE OF REVIEW: CDR	REVIEW ITEM	DISPOSITION	3 <b>B</b> -1
VEHICLE CSM 111			DATE NOV. 8, 1972
INITIATOR ORG.	ANIZATION SY	STEM	TEAM NAME
W. LANGDOC FO	DI	D&C	D&C
DISCREPANCY PROBLEM TIT	LE		
• OI	SCURED NOMENCLATURE	ON PANEL 274	
THE NOMENCLATURE ABOVE THE TO READ AS A RESULT OF TH	E TOP ROW OF CONTROL E PANEL BEING RECESS	LS ON PANEL 274 IS SED.	ALMOST IMPOSSIBLE
	1 m		
JUSTIFICATION	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		
SUCCESSENT. EFFICIENT OP	TRATIONS REQUITRE THA	T PANEL NOMENCLATUR	E BE READILY VISIBLE
	:	I TRIVEL NORMOLATOR	
RECOMMENDATION			
INSTEAD OF AT THE BOTTOM OR FREQUENTLY USED CONTROL	ROW AND IN GENERAL A	AVOID LOCATING OPER F THE PANEL.	ATIONALLY REQUIRED
CONTRACTOR'S COMMENT			
NR CONCURS WITH THE RECON	MENDATION.		
	* ÷		6
		17	Am
		NR SIGN	ATURE , E. J.
NASA TEAM CAPTAIN RECOMMENDA	TION		
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		×.	
1977 - 1979 - 297 1970 - 1970 - 297 1970 - 1970 - 297	e e c e is e e	NASA SIC	SNATURE
BOARD ACTION		· · ·	
IMPLEMENT FER RECO	MMENDAI ION		
1 4			
ACTIONEE	APPROVED	SIGNATURE OF BOAR	D CHAIRMAN
nr JUE DATE		DICI	
CLOSED	U DISAFPROVED	K. It Cal	anna 122

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LIFE OF REVIEW: PDR				NUMBER	B-2	
VEHICLE DOCKING MODULE		REVIEW	TEM DISPOSITION	DATE NO	N. 8.	1972
INITIATOR	ORGANIZ	ZATION	SYSTEM	TEAM NAME		-/1~
A. OLSEN	NASA	A	D&C	D&C		
DISCREPANCY PROBLEM	, TITLE	INCOMPLETE I	OCUMENTATION	<b>k</b>	1. 1. al	n an the second se
THE FOLLOWING DRAWI DM ELECT SYS. SCHEM FOR DM PANELS 800,	NGS ARE IN 1; V36-9771 812, 820,	NCOMPLETE AND 174 CM PANEL 2 821, and 826	NOT AVAILABLE FOR RI 274 ELECT SCHEM: SCH SCHEMATIC & ASSEMB	EVIEW: V52- EMATIC & ASSE LY DRAWINGS F	MBLY OR CM	DRAWINGS PANEL 231.
JUSTIFICATION		and the second				
CDR DOCUMENTATION S	HOULD BE	AVAILABLE FOR	APPROVAL & SUBMITTA	L TO MFG.		
RECOMMENDATION						
		·••				
SUPPLY INITIATOR WI	TH DRAWING	G WHEN AVAILAR	BLE FOR REVIEW.			
CONTRACTOR'S COMMENT						Ali o di fino degli
CONTRACTOR'S COMMENT						
CONTRACTOR'S COMMENT NR WILL SUPPLY THE	DOCUMENTS	TO NASA AS TH	EY ARE COMPLETED.			
CONTRACTOR'S COMMENT NR WILL SUPPLY THE	DOCUMENTS	TO NASA AS TH	EY ARE COMPLETED.	·····		
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CONTRACTOR'S COMMENT NR WILL SUPPLY THE	DOCUMENTS	TO NASA AS TH	EY ARE COMPLETED.	CNATURE REQ		
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CONTRACTOR'S COMMENT NR WILL SUPPLY THE NASA TEAM CAPTAIN RECO	DOCUMENTS	TO NASA AS TH	EY ARE COMPLETED.	GNATURE SIGNATURE		
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CONTRACTOR'S COMMENT NR WILL SUPPLY THE NASA TEAM CAPTAIN RECO BOARD ACTION PROVIDE DM DRAW PROVIDE DM DRAW	DOCUMENTS DOMMENDATIC	TO NASA AS TH	EY ARE COMPLETED.	GNATURE PEO		
CONTRACTOR'S COMMENT NR WILL SUPPLY THE NASA TEAM CAPTAIN RECO BOARD ACTION PROVIDE DM DRAV PROVIDE CM DRAV	DOCUMENTS DOMMENDATIC	TO NASA AS TH	EY ARE COMPLETED.	GNATURE SIGNATURE		
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TYPE OF REVIEW: DDP			NUMBER
WEUTONE DOCUMENT	REVIEW	ITEM DISPOSITION	3B-3
INTELATOR	OPCANTZARTON	CYCODEN	DATE NOV. 8, 1972
F W STEVERS	NA SA	DEC	TEAM NAME
E. W. SIEVERS	MAGA	Dat	Dec
DISCREPANCY PROBLEM	TITLE PROTECTION FR	OM SHATTERABLE MATERI	AL IN DOCKING MODULE
the company of the second			
THERE IS NO PROVISION OVER DOCKING MODULE M	TO INSTALL PROTECTI ETERS.	VE COVERING, I.E., MYI	LAR TAPE, PLASTIC COVERS
JUSTIFICATION			
MSC-M 8080, STANDARD THE CREW COMPARTMENT ENTERING THE CABIN EN CREW IN A ZERO G ENVI	41, SPECIFIES THAT NO UNLESS POSITIVE PROTI VIRONMENT. GLASS SP RONMENT.	O MATERIAL WHICH CAN S ECTION IS PROVIDED TO LINTERS OR GLASS DUST	SHATTER SHALL BE USED IN PREVENT FRAGMENTS FROM COULD BE INHALED BY THE
DECONDENDATION			
RECOMMENDATION			
INSTALL PROTECTIVE CO	VERING OVER DOCKING I	MODULE METERS.	
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CONTRACTOR'S COMMENT			
NR HAS TAKEN EXCEPTIO ARE PLANNED FOR REUSE	N TO STANDARD 41 FOR IN THE DOCKING MODUL	THE CSM, REF. SD72-CS LE THE SAME CONDITIONS	5-0031; SINCE CSM METERS 5 APPLY.
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NASA TEAM CAPTAIN RECOM	MENDATION		
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		MACA C	TONADIDE
		NASA S	IGNATURE
BOARD ACTION			
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and the second			ана Аластика В постоя в воздела и село на постоя
ACTIONEE	APPROV	ED SIGNATURE OF BOA	ARD CHAIRMAN
DUE DATE		he he	8/11/11/11/11
Closel		And the second	J. currey "124

## MSC D&P Standard No. 41 (DS-41)

### Shatterable Material - Exclusion from Crew Compartment

This standard requires that shatterable material (i.e., glass) shall not be used in the crew compartment unless protection is provided to keep fragments restrained.

#### Implementation Activity 3

A stress review has been made of all CSM meters and indicators with glass faceplates. As a result, six instruments have been identified as suspect, i.e., containing glass lenses with a safety factor of less than 1.5. The factor is based on published WADC three-sigma minimum strengths for sandblasted glass which has been reduced for 14 days at load, where it is conservatively assumed that 14 days is spent with the glass at 14.7 psi differential. This is equivalent to flying the entire mission without cabin pressure. Additionally, even though the factor of safety is less than 1.5, the probability of completing the mission without fractures ranges from 99.36% to 99.86% for five of the instruments. Tests at NR indicate in the event the glass does fracture, the break will consist of a single or double line fracture without shattering, constituting no danger to the crew.

In addition, removable protective covers have been provided for the six suspect instruments.

The floodlights are protected by FEP Teflon Covers and the  $O_2$  repressurization pressure indicator lens is protected with clear plastic tape.

It was jointly agreed by NASA and NR stress groups that components with a safety factor greater than 1.5 did not require further protection. Loose glass items such as flashlight lenses are prohibited and/or controlled during fabrication and test.

February 25, 1972

SD72-CS-0031

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TYPE OF REVIEW CDR/PDR		REUTEW	TTEM DISPOSITUTION	NUMBER 3C-1
VEHICLE CM /LLL /DM			IIEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME
C. PERNEY	F	D	CREW STATION	STOWAGE
DISCREPANCY PROBLEM	TITLE		and the second	
•		STOWAGE I	JIST UPDATE	in the state of th
AS A RESULT OF THE 5th REQUIRED. THE CM 111/D CHANGES AS OF THIS PDR. FOR PDR BOARD INFORMATI	USA/USS DM STOWA MAJOR CON.	SR JOINT MEETIN AGE LIST DATED R DELETIONS, AD	G SEPTEMBER 1972, NUM 10-27-72, HAS BEEN REI DITIONS, AND LOCATION	EROUS STOWAGE CHANGES ARE D-LINED TO REFLECT NECESSARY CHANGES ARE LISTED SEPARATELY
JUSTIFICATION	1 1 1 1 L L			and the second
MAKE THE STOWAGE LIST C	COMPATI	BLE WITH THE AS	TP MISSION REQUIREMEN	rs.
			4	
DUQALATING				at here in the second
RECOMMENDATION	î			
APPROVE THE CM 111/DM S REDLINED STOWAGE LIST.	TOWAGE	LIST UPDATE AS	PRESENTED. SEE ATTA	CHED STOWAGE CHANGE SUMMARY AND
a di tan tato inggi di sa				ning in the test of the second s
CONTRACTOR'S COMMENT				
F CONTRACT	REQUIRE	MENTS CHANGE -	DIRECTION REQUIRED .	1
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			NR SIGNA	ATURE
NASA TEAM CAPTAIN RECOMM	ENDATIO	DN		
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*			NASA SIG	NATURE
BOARD ACTION	an a	n 1997 (no 1997) an 1999 an 19		
Inipliment	46	a Hackey	, towage ch	any summary
and redlined	5 40.	wage list	4. · · · · ·	
ACTIONEE		APPROVED	SIGNATURE OF BOARD	D CHAIRMAN
DUE DATE		ODTCADDROW		5/ /
Clesed		<b>UDISEPPROV</b>	ED // -	s. Comp 11/10

## ATTACHMENT RID 3C-1

# MAJOR STOWAGE LIST CHANGES EFFECTIVE 11-9-72 PDR

## DELETIONS

LCG Systems Centerline Docking TV System Spare Emergency Gas Mask

## ADDITIONS

- 1 CM T.V. SYSTEM (CM)
- 1 Universal Camera Mount (DM)
- 1 Gas Separator Cartridge (DM)
- 1 Drinking Valve (DM)
- 1 CM Personal Hygiene Kit (CM)

## LOCATION CHANGES

]	-	Drag-Thru Umbilical	Moved	from	CM-to-DM
2	-	CCU Cables	11	11	"
2	-	CCU Heads			
1	-	Speaker Box	11	••	11

NOTE: It was assumed that the large DM stowage compartment was "Dl"; the small one was "D2", and the transfer locker was "D3" in assigning stowage locations.

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TYPE OF REVIEW:	PDR	DEVIT	TEEN DIGDOCIDION	HOTESER 4-1
VARIALE DOCKING	G MODULE	KEVU	ILEM DISPOSITION	DATE NOV. 8, 1972
INITIATOR		ORCANIZATION	SYSTEM	TEAM NAME
L. BELL		NASA	ECLSS	ECLSS
DISCREPANCY PRO	OBLEM	TITLE OXYGEN 1	MASK PROVISIONS	
THE TWO MASK DISCONNECTS	S ARE LAU (QD's) PR	NCHED STOWED AND D OVIDE THE ONLY SH	MUST BE INSTALLED IN OR UT OFF PROVISION.	BIT. THE QUICK
JUSTIFICATION USE OF MASKS CREW TIMELINI NOT EASILY BI MASKS TO BE	ARE NOW E MUST BE E DETECTE ISOLATED	ONLY FOR CONTINGE USED TO UNSTOW M D AND THE ADDITION EXCEPT WHEN REQUI	NCY CASES AND COULD NOR ASKS AND ATTACH THE QD' N OF THE SHUT OFF VALVE RED.	MALLY BE VALVED OFF. S. LEAKAGE WOULD WOULD ALLOW FOR
RECOMPENDATION			la sectore de la companya de la comp	
1. DELETE TI	HE OD'S A	ND INSTALL WITH H	ARD FITTINGS PRIOR TO I	AUNCH.
			ALD I IIIIMOD INION IO L	AUNUII.
2. ADD A SHI	UT OFF VA	LVE FOR ISOLATING	MASKS EXCEPT WHEN REQU	IRED.
2. ADD A SH	UT OFF VA	LVE FOR ISOLATING	MASKS EXCEPT MUEN REQU	IRED.
2. ADD A SHI	UT OFF VA	LVE FOR ISOLATING	MASKS EXCEPT MUEN REQU	IRED.
2. ADD A SHU COMTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLED ACTIVATION OF 1 ADDITION OF 1	UT OFF VA	UVE FOR ISOLATING	MASKS EXCEPT WHEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM HUMAN 2X4 GNATURE
2. ADD A SHI CONTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLEX ACTIVATION OF ADDITION OF 1	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH CLF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MA SED VALVE PANEL.	MASKS EXCEPT WHEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM HUMAN 244 GMATURE
2. ADD A SHU COMTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLEX ACTIVATION OF ADDITION OF 1	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH LF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MI SED VALVE PANEL. MENDATION	MASKS EXCEPT MILEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM IMMAN 224 GNATURE
2. ADD A SHI CONTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLED ACTIVATION OF ADDITION OF 1	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH ELF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MA SED VALVE PANEL. MENDATION	MASKS EXCEPT MILEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES NR SI	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM HUMAN 2XJ GNATURE SIGNATURE
2. ADD A SHI COMTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLEJ ACTIVATION OF 1 ADDITION OF 1 NASA TEAM CAPTA	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH LF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MI SED VALVE PANEL. MENDATION	MASKS EXCEPT MILEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES NR SI	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM WMass 244 GNATURE 3. GMATURE
2. ADD A SHI COMTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLED ACTIVATION OF ADDITION OF D NASA TEAM CAPTA	UT OFF VA	D'S WAS ESTABLISH D'S WAS ESTABLISH ELF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MA SED VALVE PANEL. MENDATION	MASKS EXCEPT MILEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES NR SI	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM HUMAN 2X4 GNATURE A St S towage to
2. ADD A SHI CONTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLED ACTIVATION OF ADDITION OF D NASA TEAM CAPTA BOARD ACTION Deferm in plan.	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH ELF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN M SED VALVE PANEL. MENDATION	MASKS EXCEPT MILEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES NR SI	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM MUMAN 2X4 GNATURE A St S towaye to
2. ADD A SHI CONTRACTOR'S CO THE REQUIREM QUIRED. THE PROVIDES FLED ACTIVATION OF ADDITION OF I NASA TEAM CAPTA BOARD ACTION Deferming in plane	UT OFF VA	LVE FOR ISOLATING D'S WAS ESTABLISH CIF-SEALING AND A H OF LAUNCH STOWAGE OR AT TIME WHEN MAN SED VALVE PANEL. MENDATION APPEN () APPEN	MASKS EXCEPT WHEN REQU ED BY THE BASELINE SYST REDUNDANT SEALING CAP I OF THE MASKS AND THEY ASKS ARE REQUIRED. DES NR SI NR SI NASA	IRED. EM WHERE INTERCHANGE WAS RE- S PROVIDED. THE USE OF QD'S MAY BE PLUGGED IN DURING IGN IMPACT WILL RESULT FROM MUKANA 274 GNATURE A SK S to a ge to DARD CHARMAN

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TYPE OF REVIEW: PDR			NUMBER 4-2
VEHICLE DOCKING MODULE	REVIEW	ITEM DISPOSITION	DATE NOV. 8, 1972
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
R. GRAFE	CSD	ECLSS	ECLSS
DISCREPANCY PROBLEM	TITLE		
•	DM PRESSUR	E GAUGE ACCURACY	
THE TOTAL PRESURE OF WITH AN ACCURACY OF	THE DM CAN NOW BE M ONLY <u>+</u> 25 MM HG.	ION ITORED OVER THE RAD	NGE OF 0 - 12.1 PSIA
-			
JUSTIFICATION			
THE CREWMEN MUST BE PHASES OF THE TRANSP CONCENTRATION ADJUST O <sub>2</sub> CONCENTRATION IN	ABLE TO ACCURATELY D TER; DM PRESSURIZATIO TMENT PRIOR TO ISOLAT THE SOYUZ.	ETERMINE THE TOTAL D N PRIOR TO EQUALIZAT ION FROM SOYUZ, TO M	M PRESSURE DURING TWO ION WITH SOYUZ AND N2 AINTAIN ADEQUATE
RECOMMENDATION			
PROVIDE MEANS OF MON ACCURACY OF ±5 MM HO ACCURACY OF ±2 MM HO	NITORING THE DM TOTAL G AND OF MONITORING T G.	, PRESSURE AT 490 MM HE RANCE OF 490 TO 5	HG. WITH AN 50 MM HG WITH AN
CONTRACTOR'S COMMENT		·	
THIS IS A NEW REQUIN INSTRUMENT ACCURACY	REMENT RESULTING FROM DOES NOT SATISFY THE	THE RECENT US/USSR REQUIREMENT.	MEETING AND THE PRESENT
		NR S	IGNATURE
NASA TEAM CAPTAIN RECON INCLUDE THIS REQUIRE TO ELIMINATE PRE-BRE	MENDATION MENT AS PART OF THE S ATH AS A RESULT OF SO	SYSTEM CHANGES RESULT DYUZ FLYING AT 520 ±	TING FROM THE DECISION 30.mm Hg.
		NASA	SZGNATURE
BOARD ACTION			
Implement p	er NASiA team	captain recomm	, endertion :
ACTIONEE NR		TED SIGNATURE OF P	BOARD CHAIRMAN
DUE DATE Closed		ROVED Blyn	J. Curry 11/10/29

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and the second					
TYPE OF REVIEW: PDR	DENTE	U THEN DISDOGINTON	NUMBER 4-3		
VEHICLE DOCKING MODULE		W TIEM DISPOSITION	DATE NOV. 8, 1972		
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME		
L. BELL	NASA	ECLSS	ECLSS		
DISCREPANCY PROBLEM	TITLE	••••••••••••••••••••••••••••••••••••••			
· OXYGEN PURGE DISCHARGE LOCATION					
DISCHARCE OF PURCE O ESCAPE THROUGH OVERB CABIN FAN WAS NOT RU	XYCEN IS INSIDE EQU OARD RELIEF. THIS NNING.	IPMENT MODULE AND COULD CONDITION IS OF PRIME C	OALLOW PURCE OXYGEN TO CONCERN IF THE DM		
JUSTIFICATION					
TO ASSURE THE BEST P DISCHARCE SHOULD BE THAT WILL ENSURE MAX	OSSIBLE MIXING OF T LOCATED EXTERIOR TO IMUM MIXING.	HE PURCE OXYCEN TO THE THE EQUIPMENT MODULE C	DM ATMOSPHERE THE O2 OVER IN A MANNER		
	**	1			
RECOMMENDATION		a second and a second			
LOCATE O <sub>2</sub> PURCE DISC FROM THE AIR RETURN	HARCE EXTERIOR TO I GRILL (PANEL 803).	HE EQUIPMENT MODULE COV	ER BUT SEPARATED		
CONTRACTOR'S COMMENT					
MIXING OF PURCE 02 I THROUGH THE EQUIPMEN 02 CVERBOARD.	S ASSURED BY THE RE T MODULE. A FAILUR	CLATIVELY HIGH FLOW OF T DE OF FAN WOULD RESULT I	HE FAN INFLOW GAS N LOSS OF PURCE		
			ir. I		
· ·		$\Box$	ulless (12)		
		NR SIC	INATURE (		
NASA TEAM CAPTAIN RECOM	MENDATION	an nanaran an a			
ADD TUBING TO THE O EQUIPMENT MODULE COM	PURCE VALVE SUCH I PARTMENT.	HAT THE GAS DISCHARGE W	TILL BE EXTERNAL TO THE		
•		NASA S	DIGNATURE		
BOARD ACTION					
NR PROVIT	DE TUBE PER ABOVE.				
		1			
ACTIONEE	APPR	OVED SIGNATURE OF BO	ARD CHAIRMAN		
DUE DATE DM CDR	<b>DISAP</b>	PROVED R.A. C.	loura 130		

TYPE OF REVIEW: PDR       REVIEW ITEM DISPOSITION       NUMBER       4-4         VEHICLE DOCKING MODULE       ORGANIZATION       SYSTEM       TABLE 11-9-72         INITIATOR       ORGANIZATION       SYSTEM       TEAM NAME         S. H. NASSIFF       CD2       CELSS       ECLSS         DISCREPANCY PROBLEM       TITLE       NOMENCLATURE RELOCATION AND CHANCES         THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.)         JUSTIFICATION       PREVENT CONFUSION IN OPERATIONAL COMMUNICATION         RECOMMENDATION       1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.         CONTRACTOR'S COMMENDATION       SIGUATURE         NASA TEAM CAPTAIN RECOMMENDATION       SIGUATURE         NASA TEAM CAPTAIN RECOMMENDATION       AMONG SIGNATURE         MASA TEAM CAPTAIN RECOMMENDATION       AMONG SIGNATURE         EOARD ACTION       ACTION						
VEHICLE DOCKING MODULE     DATE     11-9-72       INITIATOR     ORGANIZATION     SYSTEM     TEAM NAME       S. H. NASSIFF     CD2     CELSS     ECLSS       DISCREPANCY PROBLEM     TITLE     NOMENCLATURE RELOCATION AND CHANGES       THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALUE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.)     JUSTIFICATION       JUSTIFICATION     PREVENT CONFUSION IN OPERATIONAL COMMUNICATION     ANSK QD's.)       RECOMMENDATION     1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.       CONTRACTOR'S COMMENT     SIG/ J. M. MOSS NR SIGNATURE       NASA TEAM CAPTAIN RECOMMENDATION     SIG/ J. M. MOSS NR SIGNATURE       NASA TEAM CAPTAIN RECOMMENDATION     ASA SIGNATURE       EOARD ACTION     COARD ACTION	TYPE OF REVIEW: PDR		REVIEW ITEM DISPOSITION		SITION	NUMBER
INITIATOR       ORGANIZATION       SYSTEM       TEAM NAME         S. H. NASSIFF       CD2       CELSS       ECLSS         DISCREPANCY PROBLEM       TITLE       NOMENCLATURE RELOCATION AND CHANCES         THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.)       JUSTIFICATION         JUSTIFICATION       PREVENT CONFUSION IN OPERATIONAL COMMUNICATION       PREVENT CONFUSION IN OPERATIONAL COMMUNICATION         1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.       CONTRACTOR'S COMMENT         SIG/	VEHICLE DOCKING MODULE					DATE 11-9-72
S. H. NASSIFF CD2 CELSS ECLSS DISCREPANCY PROBLEM TITLE NOMENCLATURE RELOCATION AND CHANGES THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.) JUSTIFICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION RECOMMENDATION 1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES. CONTRACTOR 'S COMMENDATION SIG/ J. M. ROSS J. M. ROSS SIG/ NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION BOARD ACTION EOARD ACTION	INITIATOR	ORGANI	ZATION	SYSTEM		TEAM NAME
DISCREPANCY FROELEM TITLE NOMENCLATURE RELOCATION AND CHANGES THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.)  JUSTIFICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION RECOMMENDATION 1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.  CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION	S. H. NASSIFF	CD2		CELSS		ECLSS
THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH 02 MASK QD's.) JUSTIFICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION 1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES. CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS J. M. SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION BOARD ACTION	DISCREPANCY PROBLEM	TITLE	NOMENCLÂTUR	E RELOCAT	ON AND CHAN	NGES
JUSTIFICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION RECOMMENDATION 1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES. CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG! J. M. ROSS NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION NASA SIGNATURE BOARD ACTION	THE "LOW", "MEDIUM", AND "HIGH" PRESSURE RELIEF VALVE DESIGNATIONS ARE LOCATED ON THE FORWARD SIDE OF THE PANELS (LEADS TO CONFUSION WIGH O2 MASK QD's.)					
JUSTIFICATION PREVENT CONFUSION IN OPERATIONAL COMMUNICATION  RECOMMENDATION  1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.  CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION  SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION  HASA SIGNATURE  BOARD ACTION				• -		
PREVENT CONFUSION IN OPERATIONAL COMMUNICATION  RECOMMENDATION  I. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.  CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION  SIG/ J. M. ROSS NR SIGNATURE  NASA TEAM CAPTAIN RECOMMENDATION  BOARD ACTION	JUSTIFICATION		er er fall manna sold an oran.			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
RECOMMENDATION  1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.  CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION  SIG/ J. M. ROSS NAY NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION  BOARD ACTION	PREVENT CONFUSION I	N OPERAI	IONAL COMMUNI	CATION		an an Aren en ar. T
RECOMMENDATION  1. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.  CONTRACTOR'S COMMENT  NR CONCURS WITH NASA RECOMMENDATION  SIG/ J. M. ROSS NR SIGNATURE  NASA TEAM CAPTAIN RECOMMENDATION  BOARD ACTION		. *		1		
2. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.	RECOMMENDATION					
I. RELOCATE "LOW, MEDIUM, AND HIGH" PRESSURE RELIEF TO AFT SIDE OF VALVES.						· · · · · _ · _ · _
CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION	1. RELOCATE "LOW, I	MEDIUM,	AND HIGH" PRE	SSURE REL	LEF TO AFT S	SIDE OF VALVES.
CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS 144 NASA TEAM CAPTAIN RECOMMENDATION					. • •	
CONTRACTOR'S COMMENT NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS NR SIGNATURE NASA TEAM CAPTAIN RECOMMENDATION						2
NR CONCURS WITH NASA RECOMMENDATION SIG/ J. M. ROSS 144 NASA TEAM CAPTAIN RECOMMENDATION	CONTRACTOR'S COMMENT					
NASA TEAM CAPTAIN RECOMMENDATION	NR CONCURS WITH NAS.	A RECOMM	IENDATION		· · · · ·	en de la pro-
NASA TEAM CAPTAIN RECOMMENDATION				1	SIG/ J. M NR SIG	Hass 123 GNATURE
BOARD ACTION	NASA TEAM CAPTAIN RECOM	MENDATI	ON			1
BOARD ACTION	1	1			•	
BOARD ACTION			• 1		<u>)</u> . NASA S	EBill
	BOARD ACTION					900 C 700 P
NR IMPLEMENT.	NR IMPLEM	ENT.			÷	
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						· · ·
	ACTIONEE		APPROVE	ED SIGN	ATURE OF BO	DARD CHAIRMAN
ACTIONEE NR APPROVED SIGNATURE OF BOARD CHAIRMAN	DUE DATE DM CDR		DISAPPRO	OVED	.A.G	loung 121
ACTIONEE NE APPROVED SIGNATURE OF BOARD CHAIRMAN	DUE DATE DM CDR		DISAPPRO	OVED K	A.G	louna 131

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TYPE OF REVIEW: CDR		and the second	NUMBER 4-5
VEHICLE CMS 111	IICLE CMS 111 REVIEW ITT TIATOR ORGANIZATION		DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
W. LANDOC	FCID	ECS	ECLSS
DISCREPANCY PROBLEM	TITLE		1
i e a set	C	M TUNNEL DELTA P GAGE	
FOR THE CM TUNNEL DI DM DELTA P GAGES.	ELTA P GAGE, THE MEAN	ING OF + AND - INDICA	TIONS ARE OPPOSITE FROM THE
		· .	
JUSTIFICATION		the second second second	
CONSISTENT OPERATION	NS FOR THE CM AND DM .	ARE REQUIRED.	
	**	1	
RECOMMENDATION			
CONTRACTOR'S COMMENT		• • •	
NR CONCURS WITH NASA	A RECOMMENDATION.		Л
• • • • • • • • • • • • • • • • • • •		SIG. NR SIGN	ROSS
ASA TEAM CAPTAIN RECOMM	ENDATION		
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÷ .	4		Pace
• • • • • • • • •		NASA SIG	INATURE
OARD ACTION			
•		1	
NR PROV	IDE DECALS.	· · ·	18 - •
		· : · ·	
OTIONEE NR	APPEOVED	SIGNATURE OF BOARD	D CHAIRMAN
JE DATE CLOSED	DISAPPROV	ED R.A.C.	louna 129
			121

TYPE OF REVIEW: PDR	DEVIEN	THEN DISDOCTOTON	NUMBER 4-6					
VEHICLE DOCKING MODUL	E ,	TIEM DISPOSITION	DATE 11-9-72					
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME					
R. GRAFE	CSD	ECLSS	ECLSS					
DISCREPANCY PROBLEM	TITLE	•.* · · · ·	•					
REPLACE OXYGEN PURGE VALVE								
and the second								
IT WILL BE IMPOSSIBL METERING TYPE VALVE	E TO ACCURATELY DETE IS USED.	RMINE AMOUNT OF 02 US	ED FOR DM ENRICHMENT BECAUSE					
JUSTIFICATION	на на селото на селот	981 x 0 = 12						
THE FLOW RATE OF O <sub>2</sub> TO DEPRESS OF DM TO PRESSURE MEASUREMENT	MUST BE KNOWN TO DET 260 MM Hg. THIS WOU	ERMINE ACCURATELY THE LD BE USED IN CONJUNC	DM CABIN O <sub>2</sub> ENRICHMENT PRIOR TION WITH THE DM O <sub>2</sub> PARTIAL					
RECOMMENDATION	5 X X 10 1							
BE CALCULATED UTILIZ	ING FLOW RATE, TANK	DELTA PRESSURE AND TIN	ADEQUATE MEASURE OF					
ENRICHMENT.		SIG7 J. NR SIG	M. ROSS WAY					
NASA TEAM CAPTAIN RECOMM	ENDATION	2-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1						
THIS IS CONSIDERED A PR	ODUCT IMPROVEMENT CH	ANGE. NOT MANDATORY.						
	•							
e 1999 - Santa Santa 1997 - Inden Santa		NASA SI	IGNATORE					
BOARD ACTION								
•	DISAPPRO	IVED						
ACTIONEE		1.07000	· · · · · · · · · · · · · · · · · · ·					
DUE DATE		D SIGNATURE OF BOA	RD CHAIRMAN					
	<b>W</b> DISAPPRO	VED K.H. Col	onn 133					

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TYPE OF REVIEW: PDR		ד נאבר נוכנס	MEN DIGDOG THION	NUMBER 4-7	
VEHICLE DOCKING MODULE	REVIEW 1	TEM DISPOSITION	DATE 11-8-72		
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME	
S. H. NACSIFF	CD 2	2	ECLSS	ECLSS	
DISCREPANCY PROBLEM	TITLE		•		
· · ·		DM VENT VALV	TES (CM/DM TUNNE)		
VALVE POINTERS FACE TO HIDDEN BY CREWMAN'S HAN	VARDS CH	REWMAN DURING C	PFATION. POINT	ERS AND NOMENCLATURE ARE	
JUSTIFICATION		n de la compresión de la c			
NORMAL OPERATION SHOUL	D PRECLU	JDE MASKING OF	NOMENCIATURE BY	CREWMAN'S HAND.	
an a	an st	A.	· · · · · · · · · · · · · · · · · · ·	·	
RECOMMENDATION				and the second	
VALVE POINTERS SHOULD I	BE ROTAT	TED 180°.		가 있는 것은 가 있었다. 가지가 있는 것을 가지 않는 것을 가지 않는 것을 가 있다. 이 같은 것은 것을 알려진 것을 알려진 것을 가지 않는 것을 알려졌다. 것을 같은 것을 알려졌다. 것을 알려진 것을 알려진 것을 알려졌다. 것을 알려진 것을 알려졌다. 것을 알려진 것을 알려졌다. 것	
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CONTRACTOR'S COMMENT		na antona antona da antona da Como de la compositiva da antona			
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NASA TEAM CAPTAIN RECOM	MENDATI(	N		· · · · · · · · · · · · · · · · · · ·	
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TYPE OF REVIEW: PDR	סדוויזס	NTTEN DISPOSITION	NUMBER 4-8	100000
VEHICLE DOCKING MODULE	TEVIE,	N TIEM DIDIOJITION	DATE 11-9-72	ter and the second s
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	J.F.
D. F. HUGHES	MSC/CSD	ECLSS	ECISS	AND LAL
DISCREPANCY PROBLEM	TITLE HRE REFURBISHM	ENT REQUIREMENTS		
CM ECS WATER GLYCOL V GAS SYSTEMS. CURRENT CONSTRUCTION OF THESE BE EXTREMELY DIFFICUL	ALVES, P/N ME284-OL REQUIREMENTS REQUID VALVES UTILIZED A 1 T TO FLUSH.	47-0051) WILL BE USED RE ONLY FLUSHING AND A' BELLOW WITH SMALL ORIF	IN THE CABIN/TUNNEL TP OF THESE VALVES. ICES (HOLES) WHICH WO	THE (ACCONCLE) ULD
JUSTIFICATION	· · · · · · · · · · · · · · · · · · ·			1.101.1.1.1
ASSURE ADEQUATE CLEAN	LINESS OF A VALVE U	SED IN AN OXYGEN ENRIC	HED ENVIRONMENT.	4.10 497.084
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RECOMMENDATION				ingen sin 1070-060 Transformation
TEAR DOWN VALVE, ADEQ	UATELY CLEAN, REPLA	CE NON_METALLICS AND A	TP.	15 21 1
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CONTRACTOR'S COMMENT REQUIREMENT THAT THE EFFLUENT IS ADEQUATE. NASA TEAM CAPTAIN RECO CONCUR WITH INITIATOR	PROCESSING ACHIEVE	A LEVEL 3 CLEANLINESS	THE AS INDICATED BY THE HUMCLE IGNATURE	MA
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CONTRACTOR'S COMMENT REQUIREMENT THAT THE EFFLUENT IS ADEQUATE. NASA TEAM CAPTAIN RECO CONCUR WITH INITIATOR BOARD ACTION	PROCESSING ACHIEVE MMENDATION at S RECOMMENDATION.	A LEVEL 3 CLEANLINESS	THE AS INDICATED BY THE MUNCLE IGNATURE	NZZ
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CONTRACTOR'S COMMENT REQUIREMENT THAT THE EFFLUENT IS ADEQUATE. NASA TEAM CAPTAIN RECO CONCUR WITH INITIATOR BOARD ACTION	PROCESSING ACHIEVE	A LEVEL 3 CLEANLINESS	THE AS INDICATED BY THE MUNCLE IGNATURE SIGNATURE	MA
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VEHICLE DOCKING MODULE	E	TIEM DISPOSITION	DATE 11-9-72	
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
W. LANGDON	FCID	ECLS	ECLSS	
DISCREPANCY PROBLEM	TITLE			
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SOME OF THE ECIS NOME	NCLATURE AND MARKING	S IS MISLEADING OR IN	ADEQUATE.	
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JUSTIFICATION				
IMPROVE CREW OPERATIO	NS AND SIMPLIFY TRAI	INING.		
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		1		
RECOMMENDATION MAKE TH	E FOLLOWING CHANGES:			
1) PANEL 801 DM PRESS	URE SHOULD BE-DM N2	PRESSURE.		
THE DIRECT O2 VALVI	-DELETE PRESENT NOME E ON PANEL 7 OF THE	CM.	WITH AN ARROW LIKE	
3) PANEL 810 DM/SOYUZ	TUNNEL VENT AND' ISC	LATION VALVES SHOULD	HAVE THE VENT AND OPEN NOMEN-	
THE VALVE TITLE MO	VED FROM BELOW TO A	BOVE THE VALVE.	THE 12 O'CLOCK POSITION AND	
4) CHANGE MED PRESSUR	E RELIEF TO 02 PURGE	PRESSURE RELIEF.		
SONTRACION S COMMENT				
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NR CONCURS WITH NAS	A RECOMMENDATION			
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NR CONCURS WITH NAS	A RECOMMENDATION	H NR SI	URess 179	
NR CONCURS WITH NAS	A RECOMMENDATION	NR SI	URess 143 INATURE	
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NR CONCURS WITH NAS	A RECOMMENDATION	NR SIG	TRess 149 INATURE	
NR CONCURS WITH NAS	A RECOMMENDATION MENDATION	NR SIG NASA S	TRess 17-9 INATURE	
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TYPE OF REVIEW: PDR	עופריד עניגינד	THE DECEMENT	NUMBER 4-10	ACH 871			
VEHICLE DOCKING MODUL	E	TIEM DISPOSITION	DATE NOV. 8, 19	972			
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME				
D. HUGHES	NASA	ECLSS	ECLSS				
DISCREPANCY PROBLEM	TITLE	- 25 - 0 11 86 8 11 B					
	HIGH PRESS. REI	JEF VALVE FUNCTIONAL	PRESSURES				
THE RELIEF SETTING IS TO "570 TO 600" MM HG	CURRENTLY "595 TO 62 ON BOTH SIDES OF THE	26" MM HG. THIS SETT C HIGH PRESSURE VALVE	TING SHOULD BE CHANGED	D + 2 (2013)			
JUSTIFICATION	1. 14 g.X. a	-					
A HARDWARE PROBLEM (S MM HG COULD REQUIRE A PRECLUDES ENTERING TH	UCH AS LEAKING VALVE) PREBREATHING PERIOD. E PREBREATH PRESSURE	WHICH WOULD INCREAS RESETTING THE RELI ENVELOPE.	E DM PRESSURE TO 595 EF PRESSURE TO 570 TO	TO 626 O 600 MM HG			
RECOMMENDATION	n an an an Anna	en construction en	en a ser e e	1 - 19 - 19 - 19 2010 19 - 19			
CHANGE RELIEF VALVE S	ETTINGS.						
CONTRACTOR'S COMMENT	and the second second	Real contractions and the second					
REVISING THE RELIEF V COMPONENT FAILURE, HO METER TO DETECT THE F	ALVE SETTING WILL PRO WEVER ADEQUATE INFORM AILURE AND TAKE CORRE	DVIDE PROTECTION AGAI MATION IS PROVIDED BY COTIVE ACTION.	INST AN UNOBSERVED THE CABIN PRESSURE				
			tun	1 AA			
$\frac{1}{2} = \frac{1}{2} \left[ \frac{1}{2} \left[$		NR 81	IGNATURE	U Tit			
NASA TEAM CAPTAIN RECON	MENDATION						
	4	NASA	SIGNATURE				
BOARD ACTION	an albert a			a second and			
	PER MASA RECOMMENDAR	TON					
NU THE FORMUL	I BR WACA RECOMPENDAL						
ACTIONEE		CTOMANIE OF T					
NR	X APPROVI	D SIGNATURE OF BO	JARD CHAIRMAN				
DUE DATE CLOSED	DISAPPRO	OVED R.A.C.	olonna	137			
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TYPE OF REVIEW: PDR		D		NUMBER 4-11	
VEHICLE DOCKING MODULE		REVIEW	ITEM DISPOSITION	DATE 11-9-72	
INITIATOR	ORGAN12	ZATION	SYSTEM	TEAM NAME	
L. E. BELL	MSC-CS	5D	ECLSS	ECLSS	
DISCREPANCY PROBLEM	TITLE DO	OCKING MODULE	PURGE FITTING		
INADEQUATE PURGE PROVI	ISIONS FO	OR PRELAUNCH A	TMOSPHERIC COMPOSITION	I. Standard Standard Standards	
the internation of the					
JUSTIFICATION					
ESTABLISHMENT OF DESIF ATMOSPHERE AT INITIAL	RED OXYGE MANNING	EN PARTIAL PRE OF DM.	SSURE PRELAUNCH TO ASS	SURE VIABLE	
DECONGENDARION		n a la recenteradore Anticipation de la recenteradore		and the second	
PROVIDE PURGE PROVISIO	ONS TO EN ED NON-ME	NRICH DM ATMOS STALLIC MATERI	PHERE WITHOUT INCREASI ALS REQUIREMENTS.	ING DM PRESSURE TO	
CONTRACTOR'S COMMENT THIS REQUIREMENT RESUL ATMOSPHERE IN DM AT LA	LTS FROM	RECENT US/USS	R MEETING. PRESENT PI	AN IS FOR AIR	
		uni e 1 de la composición de la composición respectencias de la composición de la c	NR SIGN	Mass vy	
NASA TEAM CAPTAIN RECOM	MENDATIO	N			
14 		\$72 ■ 	A C NASA SIC	E Bell	
BOARD ACTION					
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NR PROVIDE TWO FITTINGS TO ACCOMPLISH THE PRE-LAUNCH PURCE.					
ACTIONEE	1	X APPROVE	D SIGNATURE OF BOAR	D CHAIRMAN	
DUE DATE CLOSED	-	ODISAPPROT	VED R.A. Co	louna 138	

TYPE OF REVIEW: PDR			NUMBER 4-12		
VEHICLE DOCKING MODULE	REVIEW 1	ITEM DISPOSITION	DATE 11-9-72		
INITIATOR	DRGANIZATION	SYSTEM	TEAM NAME		
D. F. HUGHES	MSC/EC	ECLSS	ECLSS		
DISCREPANCY PROBLEM TUNNEL #1 PRESSURE RELIEF VALVE					
THE EXISTING RELIEF VAL THE CM FORWARD HATCH, 4	VE/SHUT OFF VALVE RI .5 psid.	CLIEF AND FLOW SETT.	ING WOULD BACK PRESSURE		
6					
JUSTIFICATION THIS PRESSURE MAY CAUSE	LEAKING OF THE HATC	CH SEAL. THE HATCH	IS TESTED FOR 3 PSID.		
	2				
		1			
RECOMMENDATION DECREASE FLOW OF LM PRES GREATER THAN 3.0 PSID OF	SSURE ORIFICE OR REI N THE HATCH.	LIEF VALVE SETTING 7	TO ALLOW NO		
CONTRACTOR'S COMMENT THE STRUCTURAL INTEGRITY MAXIMUM DELTA P OF 4.5 1	Y OF THE CM FORWARD PSI AND IF LEAKAGE (	HATCH, ETC. IS NOT OCCURS IT IS OF NO (	JEOPARDIZED BY THE CONSEQUENCE.		
		NR S	TUMosa vy		
NASA TEAM CAPTAIN RECOMME	ENDATION				
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	4				
•		NASA	SIGNATURE		
BOARD ACTION					
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NR CHANGE THE 4.5 PSI CONDI	E HATCH STRUCTURAL I ITION	NTEGRITY CHECK TO M	EET THE		
ACTIONEE	APPROVI	ED SIGNATURE OF	BOARD CHAIRMAN		
DUE DATE CLOSED	DISAPPRO	OVED R.A.	alanna 139		

		L DTODOG TOTON	NUMBER 6-1
VEHICLE DOCKING MODULE	T REVIEW ITE	DISPOSITION	DATE 11-9-72
INITIATOR ORGAN W. SPEIER N	NIZATION ST ASA	ISTEM EPS	TEAM NAME ELECTRICAL
DISCREPANCY PROBLEM TITLE	DOCKING MODULE CON	TRACT SPECIFICATION	CHANGE- CM/DM CONNECTORS
PARAGRAPHS 3.4.22 and 3.4.2 INCORRECT NUMBER OF CONNECT	.2.1 IN DOCKING. MOD DRS AND PINS AT THE	DULE END ITEM SPEC S S CM/DM INTERFACE.	SD-72-CS-0055 CALLOUT
	· · · ·		
JUSTIFICATION			
PREVIOUS PRE-PDR ACTIVITY CLIN ORDER TO MINIMIZE THE CM	HANGED CM/DM INTERN DESIGN CHANGES.	FACE FROM CONNECTORS	5 TO 4 CONNECTORS
Lagrandez With the state of state water of the state of t			1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
RECOMMENDATION		·····	in the second
CONTRACTOR'S COMMENT CONCUR WITH RECOMMENDATION			
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CONTRACTOR'S COMMENT CONCUR WITH RECOMMENDATION VASA TEAM CAPTAIN RECOMMENDATI CONCUR	CON	NR SIGNA	TURE
CONTRACTOR'S COMMENT CONCUR WITH RECOMMENDATION NASA TEAM CAPTAIN RECOMMENDATI CONCUR	CON	NR SIGNA NASA SIG	TURE
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TYPE OF REVIEW: PDR VEHICLE DOCKING MODULE		REVIEW ITEM DISPOSITION		NUMBER 6-3	
				DATE 11-8-72	
INITIATOR S. NASSIFF	ORGANI NASA-C	ZATION D2	SYSTEM ELECTRICAL	TEAM NAME EPS	
DISCREPANCY PROBLEM TITLE CM/DM INTERFACE UM			UMBILICALS		
1. NO POSITIVE IDENTI 2. CM/DM UMBILICALS A	FICATION	ON UMBILICALS	5 FOR MATING CONNEC	TORS.	
JUSTIFICATION					
MULTIPLE ELECTRICAL C	CONNECTION	IS REQUIRE POS	SITIVE IDENTIFICATI	ON.	
DEGOLOGENDARTON			•		
1. COLOR CODE INTERFA	CE CONNEC	TORS TO ASSU	RE POSITIVE IDENTIF	ICATION.	
2. LABEL UMBILICALS	1, 2, 3, 4	FROM LEFT TO	O RIGHT.		
					e
MOCKUP DISCREPANCY - WHICH CALLS FOR COLOR	ALL PRODU	UCTION DRAWING	GS ARE COVERED BY N TORS WHICH COULD BE	MAO303-0006 (OR MAO303-0095) MISMATED.	••
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NACE IN ANT	1.		NR	SIGNATURE	
NASA TEAM CAPTAIN REC	OMMENDAT	ON			
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BOARD ACTION		en e			
CONTRACTORS COMMENT	- IMPLEMEN	IT PER		tative is a substant of stray de	
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ACTIONEE		APPROV	VED SIGNATURE OF	BOARD CHAIRMAN	
DUE DATE CLOSED			ROVED R.A.	Coloning 14	1

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TYPE OF REVIEW: CDR	200	DIVITIN	MEN DECEMPTON	NUMBER 6-4
VEHICLE CSM 111		REVIEW 1	TEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZ	ATION	SYSTEM	TEAM NAME
GARY JOHNSON	NASA	1 1872	EPS	ELECTRICAL POWER SYSTEM
DISCREPANCY PROBLEM 1.V34-945081 CONNECTOR NOMENCLATURE DOES NOT AGREE WITH PANEL SCHEMATICS (SHEET 7 & 2.V34-945102 ZONES 70,7 should SHOW GUILLOTIN	TITLE DRAV 2 8). 71,82 & 8 NE PYRO W	VING DISCREPA 3 IRES	NCIES IN ZONE 18, N 4. V37-945204 EF 5. V37-451230 DC	OMENCLATURE INCOMPLETE. ROR IN ZONE 5 ESN'T SHOW ADDED FUSES
BEING CUT. 3.V36-977174 PANEL DWG.	. CONNECT	OR ERROR	6. V50-940202 DC	ESN'I Show Cork The Fine
JUSTIFICATION	۵. ۱	1011 1018 18 1 1	e de la cara de la cara En la cara de	ne nateri belik of tawa talan i kenologia.
DECONTRACTON				
RECOMMENDATION			De Maria Artifia	era padatana additana e I
NR TO SUPPLY CORRECTED	DRAWINGS	TO MSC AS AV	AILABLE FOR REV	<b>EW.</b> . The second seco
· 6 ·			. n	
CONTRACTOR'S COLMENT	ITEM 5: E	.O. HAS BEEN	RELEASED AGAINS	V37-151220 WHICH ADDS HOLES
AND REF. DESIGNATORS F ITEM 6: V56-946202 IS NOW IN WORK SHOWS COAX	OR FUSES. A LAYOUT CONNECTO	WHEN DWG. IS DWG AND WILL DR P136.	UPDATED, FUSES NOT BE CHANGED.	WILL BE SHOWN ON THE F/O. PRODUCTION DWG V36-446202
ITEMS 1,2,3 & 4 DISCRE TO THE NASA.	EPANCIES W	VILL BE CORREC	CTED AND UPDATED	DRAWINGS WILL BE SUPPLIED
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				IL DIGNATOLE
NASA TEAM CAPTAIN RECON	MMENDATIO	N		· · · · · · · · · · · · · · · · · · ·
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BOARD ACTION		у 2	•	
IMPLEMENT PER CONTRACT	TOR'S COM	ENTS.	•	दर स्टब्स्ट्राफा । इप्रति से हैं। प्रति में 🖓
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ACTIONEE NR	1181 114		ED SIGNATURE	OF BOARD CHAIRMAN
DUE DATE CLOSED		DISAPPRO	OVED R.	F. Colonne 149
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TYPE OF REVIEW: PDR		REVIEW ITTEM DISPOSITION		NUMBER 6-5	
VEHICLE DM			IIIM DISTOSITION	DATE 11-8-72	
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME	
S. NASSIFF	NAS	A-CD2	ELECTRICAL	EPS	
DISCREPANCY PROBLEM	TITLE				
	cc	M/TV DRAG THR	UCABLE		
NO UTILITY CONNECTOR P	ROVIDED	ON DRAG THRU	CABLE FOR 16MM CAMERA	OPERATION.	
				1	
JUSTIFICATION		-			
UTILITY CONNECTOR IS P	ROVIDED	IN DM AND ON '	THE USSR J-BOX FOR 16M	M CAMERA OPERATION.	
CAPABILITY SHOULD BE P	ROVIDED	ON DRAG THRU	CABLE ALSO.		
				-	
	. •		1	e e e e e e e e e e e e e e e e e e e	
BECOMMENDATION					
PROVIDE UTILITY CONNEC	TORONI	DRAC THEU CARL	F FOR OPERATION OF 16M	MCAMERA	
TROVIDE UTILITI CONNEO		NING TIMO ORDIA	·	H OATBIR.	
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CONTRACTOR'S COMMENT					
FOR THE 16 MM CAMERA W	GRAM AMA	ANGER SPECIFIC.	ALLY STATED THAT THE U	AT CONNECTOR	
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NASA TEAM CAPTAIN RECOM	MENDATIC	ON			
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BOARD ACTTON					
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VICID DISAPPR	OURI	0			
4 MASH to car	asid.	or a revul	divia lauser	cable to be use 1.	
with 16 man	- 10.	1			
Il in commerce instead of adding this copubility to					
The COARdy TL	Che is	thre ca	ble - ACTTON C. 1-	erner 12-1-172	
ACTIONEE NASA		APPROVE	SIGNATURE OF BOAR	D CHAIRMAN	
DUE DATE		X	hi	-/	
(Los el	1.1	(X) DISAPPRO	VED (Alyn ).	Luney 11/12 . 43	
and the second sec					

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TYPE OF REVIEW: CDI	Reserved		NUMBER 6-6
VEHICLE CSM 111	the second s	REVIEW ITEM DISPOSITION	
INTELATOR	L OPCANTZAGT	ON CYCEPPI	DATE 11-9-72
GARY JOHNSON	NASA	SISTEM CON	TEAM NAME EPS
DISCREPANCY PROBLEM	• TITLE GAUG	E MICRODOT/AIRLOCK RECEPTAC	LES
MCR 31501 DATED 6-23-	-72 DOES NOT C	ONTAIN CSM 111 EFFECTIVITY.	$f_{ij} f_{ij} = f_{ij}^{(i)}$ .
- survey first		1999년 - 1999년 - 1999년 - 1999년 -	
JUSTIFICATION			
GAUGE IS NECESSARY TO	) INSURE CONNE	CTORS CAN BE MATED.	n de la constant de la constant de la constant
RECOMMENDATION	К	an a	
ADD MCR 31501 REOUTRE	MENTS TO MCR	36116 (CSM 111 LIPDATTE)	and the state of the state of the state of the
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CONTRACTOR'S COMMENT			
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CONTRACTOR'S COMMENT NR CONCURS WITH T	HE RECOMMENDAT	lon. NR	SIGNATURE
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CONTRACTOR'S COMMENT NR CONCURS WITH T NASA TEAM CAPTAIN RECO BOARD ACTION NR IMPLEMENT GAGIN	HE RECOMMENDAT	TION. NR NASJ	SIGNATURE
CONTRACTOR'S COMMENT NR CONCURS WITH T NASA TEAM CAPTAIN RECO BOARD ACTION NR IMPLEMENT GAGIN	HE RECOMMENDAT	NAS/	SIGNATURE
CONTRACTOR'S COMMENT NR CONCURS WITH T NASA TEAM CAPTAIN RECO BOARD ACTION NR IMPLEMENT GAGIN	HE RECOMMENDAT	NR NR NASJ NASJ APPROVED SIGNATURE OF	SIGNATURE A SIGNATURE BOARD CHAIRMAN
CONTRACTOR'S COMMENT NR CONCURS WITH T NASA TEAM CAPTAIN RECO BOARD ACTION NR IMPLEMENT GAGIN ACTIONEE NR DUE DATE CLOSED	HE RECOMMENDAT	NR NASA APPROVED SIGNATURE OF DISAPPROVED A.A.	SIGNATURE A SIGNATURE BOARD CHAIRMAN Colourne

TYPE OF REVIEW: PDR			NUMBER 6-7
VEHICLE DOCKING MODUL	E REVIEW 1	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
LATTIER	TSCD - EE13	CABLE COMM.	ELECTRICAL WIRING
DISCREPANCY PROBLEM	TITLE INFO FOR	CABLE COMM	
DESIGN INFC	FOR MEETING WITH SOV	IETS	
		n n Ng	
JUSTIFICATION	de a glan de se é promoté projecte a la dela de la dela de la dela de la dela de		·
NEED CABLE COMM DESIG	N INFO TO DISCUSS WIT	H SOVIETS.	
		e e e e e e e e e e e e e e e e e e e	-
	а <sup>н с</sup>	1	
RECOMMENDATION			
2) DESIGN	FOR USSR J-BOX WITH	CABLE LENGTH SUFFIC	IENT FOR USE IN CM (DRAG-GHRU)
NR WILL PROVIDE REQU 1) 11-22- 2) 11-22-	ESTED INFORMATION AS F -72 -72	POLLOWS: SIG/ H. NR SI	HORII IGNATURE
NASA TEAM CAPTAIN RECOM	MENDATION	an a	
>	• d		• • • • • • • • • •
2 3 6° 11 1 11 11 11 11		NASA	SIGNATURE
BOARD ACTION			
, PROVIDE IN	FO BY 11-22-72.		
		2 	
ACTIONEE NR DUE DATE 11-22-72	APPROVE	ED SIGNATURE OF BU	OARD CHAIRMAN Colonna 145

TYPE OF REVIEW: PDR	PEULEN	TTEM DISPOSITION	NUMBER 9-1
VEHICLE DOCKING MODULE		TILM DIST COTTION	DATE 11/9/72
INITIATOR	GANIZATION	SYSTEM	TEAM NAME
M. STEINTHAL	PD9	MATERIALS	MATERIALS
DISCREPANCY PROBLEM TI	TLE	TALS CONTROL DIAN	
· _	TA LEA	TALS CONTROL FLAN	
NR HAS NOT SUBMITTED THE F	REVISED MATERIALS	CONTROL PLAN SD67-556	TO INCLUDE THE ASTP
REQUIREMENTS.		$ \begin{array}{c} \left  \begin{array}{c} 1 \\ 0 \end{array} \right  = \left  \begin{array}{c} \left  \begin{array}{c} 1 \\ 0 \end{array} \right  \\ \left  \left  \begin{array}{c} 1 \\ 0 \end{array} \right  \\ \left  $	
	~	· - ·	
JUSTIFICATION	and a second	ta por transforma a secondaria da compañía de la co	
REQUIRED PER	MSC-PA-D-67-13.	n na ser ser Ale T	- Charlenger og de sinder at skale skale -
	- ÷	1	
RECOMMENDATION		a ann an ann an Arraigh an Arraigh	A Contraction of the second
NR SHOULD SUBMIT THE REVIS	SED MATERIAL CONTR	OL PLAN TO MSC FOR RE	VIEW AND APPROVAL.
NR SHOULD ESTABLISH A FIRM	COMPLETION DATE	FOR SUBMITTAL OF THE	REVISED PLAN.
에는 이상에서 가지 있는 것이 가지 않는다. 			
			,
CONTRACTOR'S COMMENT		a ser regele and the second	
NR IS CURRENTLY REVISING	THE MATERIALS CONT	ROL PLAN SD67-556.	
THE COMPLETION DATE FOR TH	HIS DOCUMENT WILL	BE 12/15/72.	
		:	
a tanàna mandritra dia kaominina	$ \psi_i  \ge \frac{1}{p} - \frac{1}{2p} \frac{1}{p} \frac$	NR SIC	GNATURE
NASA TEAM CAPTAIN RECOMMENT	DATION	and a second barrent to be a second to be	
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an and a free and ∎ best () is an art in the first of		NASA S	SIGNATURE
BOARD ACTION		<ul> <li>A start of the sta</li></ul>	
NR SUBMIT PLAN TO MSC BY D	12/15/72.	÷	
1	-		<i>i</i> •
ACTIONEE	APPROV.	ED SIGNATURE OF BO	ARD CHAIRMAN
DUE DATE 12-15-72	DISAPPR	OVED DAL	2 - para
	a parateria a at		

TYPE OF REVIEW:			NUMBER 9 - 2	
VENTCLE CON DOC	REVIEW 1	ITEM DISPOSITION	DATE 11_9_72	
INITIATOR 0	RGANIZATION	SYSTEM	TEAM NAME	a na suppose de la composición de la co
N Steinthal	סחפ	MATTERTAIS	MATERIAIS	
R. DUSINGHAI	1 07			
DISCREPANCY PROBLEM	FIRE EXTINGUISH	TER HOLE IN PANEL 250	0	
A REVIEW OF NR DRAWIN DOES NOT HAVE A FIRE	G V36-976029 AND TH EXTINGUISHER HOLE.	E MOCKUP INDICATES	THAT ELECTRICAL PANEL 250	5 . S. 7
		•		
JUSTIFICATION				
NR WAS DIRECTED PREW in SC 110 AND SUBS.	VIOUSLY BY MSC TO AL	DD A FIRE EXTINGUISH	ER HOLF IN PANEL 250	
		1		
RECOMMENDATION				
NR SHOULD ASSURE THA	T PANEL 250 HAVE A	FIRE EXTINGUISHER H	OLE ADDED.	
			•	.* •
			• • • • • • • • • • • • • • • • • • • •	t i Norice
CONTRACTOR'S COMMENT DUC HOLF. ENGINEER AND THE MOCKUP S THIS RID SHOULD	7 V36-452251, PANEL INDICATES THIS CONF SHOULD BE UP-DATED T BE CLOSED.	250, WAS REVIEWED AN FIGURATION WILL BE US TO REFLECT ACTUAL CON	ND HAS A FIRE EXTINGUISHE SED ON ASTP. V36-976029 NFIGURATION.	R
		14 1		
		NR S	IGNATURE	· · · · · · · · · · · · · · · · · · ·
NASA TEAM CAPTAIN RECOMM	ENDATION			
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				ал. В
		NASA	SIGNATURE	
BOARD ACTION				
י דתדעהמס מא	TRF HOIF	÷		
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			15	
ACTIONEE		SIGNATURE OF	BOARD CHAIRMAN	
	I I APPROL			
NR DARE			$\bigcap $	

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TYPE OF REVIEW: PDR	PEUTEN	TTEN DISDOSTATON	NUMBER	9-3
VEHICLE DM	REV.LEW	TIEF DISPOSITION	DATE 11/9/2	2
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
M STETNTUAT	PDO	MATERTAL	MATER	TALS
H. STEININE	127	Internet		
-				
DISCREPANCY PROBLEM	TITLE			
	DM T	OXICITY TEST		4 A M M M M M
•		, ,		
A REVIEW OF AVAILABLE D	ATA INDICATES NR HAS	NOT MADE PROVISIONS	TO INSURE	
THAT A FULL SCALE (HIGH	FIDELITY) OUTGASSING	G TEST OF THE DM BE (	CONDUCTED.	
		· -		
JUSTIFICATION		in a state of the second s		
IED 50716 STATES THAT A	FULLSCALE TOXICITY	TEST ON THE CM WILL I	BE CONDUCTED	
and a second sec				
	λ <sup>*</sup> π	1		
PECOMENDATION				
ND CHALL DROUTDE FOR ON	TO ACCTNO ANALVOTO OF	THE THERMAL VACUUM		VENTOLE
NR SHALL FROVIDE FOR OU	TGASSING ANALISIS OF	THE INERMAL VACOUM	LESI MODULE FLIGHI	VERICLE. A
PLAN SHOULD BE PREPARED	BY NR THAT WILL DEF	INE PICK UP POINT FOR	R ATTACHMENT OF SAM	PLING
FOUTPMENT AND TEST TECH	NTOUE AND PROVIDE TH	E PLAN TO MSC FOR API	PROVAL. NR SHOULD	ALSO
CONTRACTION AS CONTRACTION	COMPLETION DATA.			· · · · · · · · · · · · · · · · · · ·
CONTRACTOR'S COMMENT				3.1
(THIS EFFORT IS NOT PAR	T OF BASELINE REQUIRI	EMENTS.		
				1 A
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a an an an an an arrest a se		NR SI	GNATURE	
NASA TEAM CAPTAIN RECOM	MENDATION			the fail of the fail of the fail
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		1	<i>*</i>	
		NASA	STONATURE	
		IMOX	DIGNATORS	
BOARD ACTION	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		- 11 B
, RID	DISAPPROVED	:		
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MSC	PROVIDE DIRECTION.	·		1
		4		
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A CONT ONLET		Lanaliti		1 · ·
ACTIONEE	APPROVE	D SIGNATURE OF BO	DARD CHAIRMAN	х. 
ACTIONEE	APPROVE	ED SIGNATURE OF BO	DARD CHAIRMAN	
ACTIONEE DUE DATE	APPROVE DISAPPRO	ED SIGNATURE OF BO	Calonna	1110

CDR/PDR RE		REVIEW	ITEM DISPOSITION		
VEHICLE CSM 111				DATE 11/9/72	
INITIATOR	ORGANI	IZATION	SYSTEM	TEAM NAME	
M. STEINTHAL	P	D9	MATERIALS	MATERIALS	
DISCREPANCY PROBLEM	• TITLE	AGE LIFE OF	POLYESTER URETHANE	MATERIALS	
THERE ARE APPROXIMAT COMPOUNDS OF THIS MA OVER 6 YRS BY TIME O	ELY 39 C TERIAL R OF FLIGHT	OMPONENTS IN EVERT AFTER 6	THE CSM THAT USE PO YRS OF STORAGE. C	LYESTER URETHANE. MANY OMPONENTS IN CSM 111 WILL BE	
			*•		
AS A RESULT OF ALERT REVIEW THE POLYESTER REVERSION PROBLEM SI BT2-292, DATED 9/29/	MSFC-A- URETHAN MILARILY 72.	72-13, DATED E PROBLEM. I' EXISTS ON CS	JULY 7, 1972, MSC F I WAS REQUESTED THA M VEHICLES. REFERE	ORWARDED NR DIRECTION TO T NR VERIFY THAT NO NCE MSC LETTER PD9/L123-72-	
RECOMMENDATION					
OCCUR THEN THE PERFO	RMANCE O	F THE COMPONE	NT WILL NOT BE COMP	PROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DRMANCE C	)F THE COMPONE NASA LETTER	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DRMANCE C	)F THE COMPONE	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DRMANCE C	)F THE COMPONE	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DRMANCE C	)F THE COMPONE ) NASA LETTER	NT WILL NOT BE COMP IS CURRENTLY IN WOR	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABO COMPLY WITH THE REQU	ORMANCE C	DF THE COMPONE D NASA LETTER	NT WILL NOT BE COMP	K STATING NR WILL	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DVE NOTED DVE NOTED JEST. OMMENDAT	OF THE COMPONE O NASA LETTER	NT WILL NOT BE COMP	K STATING NR WILL	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DVE NOTED DVE NOTED DEST. OMMENDAT	)F THE COMPONE ) NASA LETTER ION	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DVE NOTED JUST. OMMENDAT:	)F THE COMPONE ) NASA LETTER ION	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU	DVE NOTED DVE NOTED DEST. OMMENDAT	)F THE COMPONE ) NASA LETTER ION	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABO COMPLY WITH THE REQU	DVE NOTED JUEST. OMMENDAT:	D) NASA LETTER	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU NASA TEAM CAPTAIN RECO	DVE NOTED DVE NOTED DEST. OMMENDAT: 11	OF THE COMPONE ONASA LETTER ION	NT WILL NOT BE COMP	IGNATURE	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU NASA TEAM CAPTAIN RECO BOARD ACTION	DVE NOTED JEST. OMMENDATI	OF THE COMPONE O NASA LETTER ION	NT WILL NOT BE COMP	ROMISED.	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU NASA TEAM CAPTAIN REC BOARD ACTION	DVE NOTED JUST. OMMENDAT:	OF THE COMPONE O NASA LETTER ION	NT WILL NOT BE COMP	K STATING NR WILL IGNATURE	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU NASA TEAM CAPTAIN RECO	DVE NOTED DVE NOTED DEST. OMMENDATI	ONASA LETTER	NT WILL NOT BE COMP	IGNATURE	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABO COMPLY WITH THE REQU NASA TEAM CAPTAIN RECO	DVE NOTED JEST. OMMENDAT:	ONASA LETTER	NT WILL NOT BE COMP	K STATING NR WILL IGNATURE	
CONTRACTOR'S COMMENT AN ANSWER TO THE ABC COMPLY WITH THE REQU NASA TEAM CAPTAIN RECO BOARD ACTION NR CC	DVE NOTED JEST. OMMENDAT:	O NASA LETTER	NT WILL NOT BE COMP	K STATING NR WILL IGNATURE SIGNATURE	

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TYPE OF REVIEW.		ana paga na ang taong	NUMBER
THE OF NEWLER. PDR	REVII	W ITEM DISPOSITION	9-5
VEHICLE DOCKING MODUL	E		DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
M. STEINTHAL	PD9	MATERIAL	MATERIAL
DISCREPANCY PROBLEM	TITLE		
	VCM OUTGASSING	G & TEST ON ATTENUATOR/	GEARBOX
THE DM ATTENUATOR ASS NOT MEET THE REQUIREN THERE IS NO ASSURANCE	SEMBLY/GEARBOX ASSI MENT OF SP-R-0022 E THAT THEY WILL NO	EMBLY USES HYDRAULIC FI (VCM). ALTHOUGH THESE DT CAUSE A CONTAMINATIO	LUIDS AND LUBRICANTS THAT DO COMPONENTS ARE GASKET SEALED, ON PROBLEM UNDER VACUUM CONDITIONS
2 - 2			
JUSTIFICATION			
	SP-R-0022		가 가지 않는 것 같다. 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것
n an	ny sela ang c	n Na star an an an	
RECOMMENDATION			
NR SHOULD ESTABLISH A COMPONENTS DURING QUA PLATES IN THE CHAMBEN	A PLAN AND SUBMIT T ALIFICATION TESTING R FOR SUBSEQUENT VO	TO MSC FOR THE CONDUCT G OF THE EQUIPMENT. TH CM ANALYSIS.	OF AN OUTGASSING TEST ON THESE HE TEST SHOULD UTILIZE WITNESS
CONTRACTOR'S COMMENT			
NR CONSIDERS THE ABOV OF THE UNITS.	VE A REQUIREMENT A	T PRESENT. WITNESS PLA	ATES WILL BE INCLUDED IN TV TESTS
		Ť	
		MR S	ТСМАФИРЕ
NASA TEAM CAPTAIN RECOM	MENDATION		
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		and the second	ana ana ara a
		NASA	SIGNATURE
BOARD ACTION			
I	PLEMENT PER CONTRA	ACTOR'S COMMENTS	
2 Maria de la composition de la composition El composition de la c			na an a
ACTIONEE		SIGNATURE OF F	OARD CHATRMAN
NR			(1.0)
DUE DATE CLOSED	ODISAF	PPROVED / x / T	Cotoma 150

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TYPE OF REVIEW: PDR	DENTE	THEN DISDOCTOTON	NUMBER 11A-1
VEHICLE DOCKING MODULE	I I I I I I I I I I I I I I I I I I I	TIEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
R. J. WARD	PD	MISSION REQUIREMENTS	STRUCTURE 11A
DISCREPANCY PROBLEM	TITLE		
	FIRE EXTINGUIS	HER RELOCATION IN DM	n i i
FIRE EXTINGUISHER IN AIR LOCK (SAL)	DM IS IN THE POTEN	TTIAL LOCATION FOR A SCIE	NTIFIC
	-,	· · ·	
JUSTIFICATION			
AN SAL IN THE DM WOULD F WINDOW AND A VACUUM LINE FOR ASTP EXPERIMENTS.	LY EXISTING SKYLAE E. THERE IS A GOOD	D PROBABILITY THAT AN AIF	VIEWING/PHOTOGRAPHY RLOCK WILL BE REQUIRED
			-
		1	
RECOMMENDATION			
RELOCATE THE FIRE EXTING RELATED EXPERIMENTS.	GUISHER IN THE DM T	TO RESERVE SPACE FOR A SC	CIENTIFIC AIR LOCK AND
n para para para para para para para par		:	
			·
CONTRACTOR'S COMMENT			
THE SAL IS NOT A REQUIR	EMENT.		
1. AN 1.			
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ana an		NR SIGNA	ATURE
NASA TEAM CAPTAIN RECOMM	ENDATION		
DISAPPROVE. THE NASA CA	AN PROCESS AN RECP.	• •	· · · ·
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grag <sup>ant</sup> ran ran an ar an		NASA SIG	NATURE
BOARD ACTION			
		•	
ACTIONEE		SIGNATURE OF BOAR	D CHATRMAN
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NOT DETA	<b>W</b> DISAPPF	ROVED 17.14. Ce	louna 151

TYPE OF REVIEW: PDR			NUMBER 11a-2
VEHICLE DOCKING MODULE	REVIEW	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
G. SANDARS	SMD-MSC	STRUCTURES	STRUCTURES
DISCREPANCY PROBLEM	TITLE CM-DM CLEA	R OPENING	
CONTRACT END ITEM SPECI PARA. 3.4.1.2 DM/CM HAT 723MM (28.5) CLEAR OPEN PROTRUDE INTO THIS OPEN LOCATION.	IFICATION FOR APOLLO S TCH STATES THAT THE CI VING. THE COVERS FOR VING 5/8" REDUCING TH	SOYUZ PROJECT DOCKING M M-DM OPENING SHALL PROV THE ASTP FEED THRU CON E CLEAR OPENING TO APPR	ODULE SD72-CS-0055 TDE APPROXIMATELY NECTOR AND COVER OX. 27.25" AT ONE
JUSTIFICATION	a ray for the second		
COVER REQUIRED TO PROTE	ECT CONNECTOR DURING 1	EGRESS AND INGRESS.	-
1. 2. A. 2. V			
RECOMMENDATION			
ACCEPT REDUCED CLEAR OF	PENING.		
COMPRACTION IS CONDENT			· · · · · · · · · · · · · · · · · · ·
CONFIGURATION OF CONNEC CM DOCKING RING.	CTOR REQUIRES ENCROAC	HMENT INTO TUNNEL IN OF	DER TO AVOID MACHINING
		NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION	NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION	NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION	NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION	NR SIGNA	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION	NR SIGN	NATURE
NASA TEAM CAPTAIN RECOM BOARD ACTION DESIGN OK AS IS. RID	MENDATION	NR SIGN	NATURE
NASA TEAM CAPTAIN RECOM	MENDATION CLOSED.	NR SIGN	NATURE
NASA TEAM CAPTAIN RECOM BOARD ACTION DESIGN OK AS IS. RID ACTIONEE	MENDATION CLOSED.	NR SIGNATURE OF BOAR	ATURE NATURE

TYPE OF REVIEW: PDR	REVIEW	TTEM DISPOSITION	NUMBER 11a-3			
VEHICLE DOCKING MODULE		IIDA DIGIONITION	DATE 11-9-72			
INITIATOR OR	GANIZATION	SYSTEM	TEAM NAME			
R. CLICKNER	PT 4	STRUCTURE	STRUCTURE			
DISCREPANCY PROBLEM TI	TLE		1			
	GUILLOTINE LOCA	TION				
AT PRESENT, DESIGN PROTRAYS THE GUILLOTINE WHICH SEVERS DM SEPARATION WIRING MOUNTED ON THE DM. IF WIRING IS MOUNTED ON TRUSS NO. OF WIRES TO BE SEVERED IS LESS AND SHOCK TRANSMISSION CHARACTERISTICS ARE NOT A CONCERN.						
		* e				
JUSTIFICATION						
RECERTIFICATION NOT REQUIR AND EVALUATION.	RED AND SHOCK CONS	IDERATIONS ARE NOT SUB.	JECT FOR DISCUSSION			
1		· ·				
	· ·	1				
RECOMMENDATION						
NO TO DEVITEN DESTON AND EN		MOUNTING ON TOUCO				
NR TO REVIEW DESIGN AND EV	ALUAIE ALIERNAIE	MOUNTING ON TRUSS.				
	•		2			
		n Na Taking A				
CONTRACTOR'S COMMENT						
NR CONCURS WITH REVIEW ANT	) EVALUATION					
STUDY TO BE COMPLETED IN 2	2 WEEKS.					
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•			-			
		MD STCH	קרתוח			
NASA TEAM CADMATH DECONTROL			TURE			
NADA TEAM CAPTAIN RECOMMENT.	ATION					
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•	Tant di Li Tant di Li Alaman Mari Lini	Runs MASA SIG	<u>Children</u>			
BOARD ACTION						
CONDUCT EVALUATION BY 11-2	2-12					
		· · · · ·				
	A.S. A.S. 8		193 - 5 <b>1</b> 19 P. 1			
ACTIONEE NR	APPROVET	SIGNATURE OF BOARD	) CHAIRMAN			
DUE DATE		$m_{n}$ $(n n n)$	1			
	U DISAPPROV	Kitte Col	onna 153			

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TYPE OF REVIEW: PD	R		and a second	NUMBER 11a-4
VEHICLE DOCKING MODU	ILE	REVIEW	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZA	TION	SYSTEM	TEAM NAME
R. J. WARD	PD	28 - 124 1	MISSION REQUIREMENTS	STRUCTURE 11a
DISCREPANCY PROBLEM	TITLE DM S	TOWAGE LOCAT	TIONS FOR EXPERIMENTS	
STOWAGE LOCATIONS IN TH ASTP EXPERIMENTS.	E DM ARE	NOT IDENTIFI	ED OR RESERVED FOR POT	ENTIAL
			ntan Sait Sait Ma	
JUSTIFICATION			a	
THE DM INTERNAL STOWAGE PERMANENT AND TEMPORARY	CONFIGUR STOWAGE	ATION SHOULD OF POTENTIAL	DIDENTIFY POTENTIAL LO ASTP EXPERIMENTS.	CATIONS FOR
RECOMMENDATION				
IDENTIFY POTENTIAL LOCA EXPERIMENTS.ALL POTENTI CREW TRANSFER WITHOUT R	TIONS FOR AL LOCATI EMOVAL.	PERMANENT A ONS SHOULD E	ND TEMPORARY STOWAGE O DE COMPATIBLE WITH A MI	F POTENTIAL ASTP NIMUM DURATION
CONTRACTOR'S COMMENT				
THERE IS NO REQUIREMENT BUT REQUIRES DIRECTION,	TO RESER	VE SPACE FOR ION AND COOR	EXPERIMENTS. THIS CAN DINATION FROM NASA.	N BE ACCOMPLISHED
•			· · · ·	-
	• •	á mar an	NR SIGNA	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION			
NASA AND NR SHOULD NEGO PROCESS RECP FOR INCORP	TIATE LOC. ORATION I	ATIONS TO BE NTO PROGRAM	RESERVED FOR EXPERIME SPECIFICATIONS.	NTS AND NASA CAN
	ander Antonio de la composición de la composi Antonio de la composición	n n na se gener	NASA SIC	GNATURE
BOARD ACTION NR AND NASA DETERMINE P NOT TO IMPACT BASELINE	OTENTIAL DM ARRANG	LOCATIONS BY EMENT DESIGN	10 NOVEMBER 1972. LO	CATIONS
				• • • • •
LOUT ON THE	1		STONATURE OF POAR	N

TYPE OF REVIEW: PDR		5 1 X - 2 - 2	NUMBER 11a-5
VEHICLE DOCKING MODULE	REVIEW 1	TEM DISPOSITION	DATE 11-8-72
INITIATOR OF S. H. NASSIFF	GANIZATION NASA-CD2	SYSTEM STRUCTURES	TEAM NAME STRUCTURES
DISCREPANCY PROBLEM	TLE HATCH IDENTIFIC.	ATION - TUNNEL IDENTI	IFICATION
CURRENT DESIGN DOES NOT I	NCLUDE IDENTIFICAT	ION OF HATCHES AND TU	INNELS.
	· · · · ·	•	
JUSTIFICATION			
PROVIDE POSITIVE IDENTIFI	CATION FOR PROCEDU	RES AND COMMUNICATION	۷.
4.			-
RECOMMENDATION IDENTIFY HATCHES AS FOLLO SOYUZ HATCH #4. IDENTIFY "TUNNEL 2". (RUSSIAN & EN	WS: CM HATCH #1; TUNNELS AS FOLLOW GLISH LANGUAGE)	DM (CM END HATCH) #2; S: CM/DM END - "TUNN	; DM (SOYUZ END HATCH) #3; NEL 1"; DM/SOYUZ END -
CONTRACTOR'S COMMENT			
NR CONCURS			
		NR SI	GNATURE
NASA TEAM CAPTAIN RECOMMEN	NDATION		
CONCUR			• · · · ·
	•		
	and a second sec	NASA	SIGNATURE
BOARD ACTION			
IMPLEMENT ABOVE AND INCI CHANGES ASTP SPEC.	LUDE SOYUZ OM TO EM	HATCH #5.	
No. 2010 And Age No.			· · · ·
ACTIONEE NR	APPROV.	ED SIGNATURE OF BO	DARD CHAIRMAN
DUE DATE CLOSED		oved $R.A.C$	Colonna 155

SUYUZ END

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821	825	828		
831	835	838		
841	Dz	DZ 846		
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¥6)	865		869	

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CM END

DOCKING MODULE PANEL NUMBERING SCIFEME PRE RID # 114-5 11-10-72

FDI FDI	R	A TARK DIGROGIATION	NUMBER 11a -6
VEHICLE DM	HEV LEV	N ITEM DISPOSITION	DATE 11-8-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME 4774
S. H. NASSIFF	NASA - CD2	STRUCTURES	#LLA STRUCTURES
DISCREPANCY PROBLEM	TITLE REDESIGN	NATION OF SYSTEMS MODU	LE PANEL NUMBERING
RRENT NUMBERING OF P.	ANELS IS NUMBERED FR	ROM TOP TO BOTTOM AND	SWITCHES TO LEFT AND RIGHT.
	en de la Cara		
USETETCATION			
UST IF ICATION			
CURRENT NUMBERING SY	STEM LEAKS TO CONFUS	SION DURING OPERATIONA	L COMMUNICATION.
		2	
ECOMMENDATION			
REDESIGNATE PANELS F	TROM LEFT TO RIGHT A	ND TOP TO BOTTOM IN AN	ORDERLY MANNER.
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CNTRACTOR'S COMMENT NR CONCUR ASA TEAM CAPTAIN RECO NUMBER PER ATTACHMEN	OMMENDATION IT TO RID.	NR SIC	NATURE
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CNTRACTOR'S COMMENT NR CONCUR ASA TEAM CAPTAIN RECO NUMBER PER ATTACHMEN OARD ACTION	OMMENDATION IT TO RID.	NR SIC	IGNATURE
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TYPE OF REVIEW: PDR	PENIEW	TEM DISPOSITION	NUMBER 12-1
VEHICLE BOCKING MOI	DULE	IDA DISIGNILION	DATE 11-9-72
INITIATOR	ORGANIZATION	System	TEAM NAME
L. WILLIAMS	MSC	DOCKING	DOCKING SYSTEM
DISCREPANCY PROBLEM	TITLE	à. <sup>Phar</sup> At	
• •	SPRING THRUS	STER RELIABILITY	
THE SPRING THRUSTER DI PROVIDE CLOSEOUTS TO I	SSIGN IS AN EXTREMELY RECLUDE DEBRIS.	CLOSE FIT (0.0002 MIN.	. CLEARANCE) AND DOES NOT
n in Air		5.a	
JUSTIFICATION		anna 1922 - Anna - Ann aireanna ann fheireann fair beile freinn ann An	
THE SPRING THRUSTERS A	ARE POTENTIAL SINGLE H	FAILURE POINTS WHICH CO	ULD PRECLUDE DOCKING.
in an and in the	:		-
4		<i>i</i>	
DECOLORIDATION			
RECOMMENDATION			
PROVIDE A RELIABLE DES SCREENS TO PRECLUDE FA	SIGN WHICH DOES NOT RE AILURE FROM CONTAMINAT	EQUIRE CLOSE FITS AND I	INCLUDE FILTERS OR DEBRIS
CONTRACTOR'S COMMENT		, ×	
NR WILL PROVIDE ADEQUA	ATE CLEARANCES AND MEA	ANS OF PREVENTING OR CO	ONTROLLING DEBRIS AND MOISTURE.
ACTION COMPLETE NOVEN	1BER 27, 1972.		
		SIG/ C. H.	LOWRY
	-	NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION		
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tin di bi A	sa barang 1997 - Tao Santa 1997 - Santa Santa 1997 - Santa Santa Santa	SIG <u>/ L. G.</u> NASA SI	WILLIAMS GNATURE
BOARD ACTION			and the second
' IMPLEMEN'	I PER CONTRACTORS COM	ENT.	•
ACTIONEE		D SIGNATURE OF BOAL	RD CHAIRMAN
DUE DATE 11-27-72	DISAPPRO	OVED R.A. Col	louna 158
<u> </u>			

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TYPE OF REVIEW: PDR		DENTES TOP	U DISDOCITION	NUMBER	12-2
VEHICLE DOCKING MOD	ULE	REVIEW TIE	M DISPOSITION	DATE	11-9-72
INITIATOR	ORGANIZATI	ON S	YSTEM	TEAM NAME	
L. WILLIAMS	MSC	DO	CKING SYSTEM	DOCKING S	YSTEM
DISCREPANCY PROBLEM	TITLE		a herri an den de la composición de la		
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THERE ARE NO PROVISIO THE SLA. UNDETECTED	NS FOR VERIF LEAKAGE RESU	YING ATTENUA JLTS IN LOSS	TOR INTEGRITY AF OF ATTENUATION A	TER THE DM IS IN ND UNACCEPTABLE	STALLED IN OUT-GASSING.
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JUSTIFICATION				**************************************	
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	8 °				
RECOMMENDATION					
PROVIDE CAPABILITY TO SLA.	VERIFY ATTE	ENUATOR INTEG	RITY AFTER INSTA	LLATION OF THE D	M IN THE
CONTRACTOR'S COMMENT					
NR WILL EXAMINE THE N					• •
	EED FOR AND	THE METHOD C	F PROVIDING THIS	CAPABILITY BY D	ECEMBER 15, 1972.
	IEED FOR AND	THE METHOD C	F PROVIDING THIS	CAPABILITY BY D	ECEMBER 15, 1972.
	LEED FOR AND	THE METHOD C	F PROVIDING THIS SIG/ C	. A. LOWRY	ECEMBER 15, 1972.
	IEED FOR AND	THE METHOD C	F PROVIDING THIS SIG/ C NR S	. A. LOWRY	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM	MENDATION	THE METHOD C	F PROVIDING THIS SIG/ C NR S	. A. LOWRY IGNATURE	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM	EED FOR AND	THE METHOD C	F PROVIDING THIS SIG/ C NR S	. A. LOWRY IGNATURE	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM	MENDATION	THE METHOD C	F PROVIDING THIS SIG/ C NR S	. A. LOWRY IGNATURE	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM	MENDATION	THE METHOD C	F PROVIDING THIS SIG/ C NR S SIG/ L. NASA	G. WILLIAMS	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM CONCUR	MENDATION	THE METHOD C	SIG/ C NR S SIG/ L. NASA	G. WILLIAMS	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM CONCUR BOARD ACTION	MENDATION	THE METHOD C	F PROVIDING THIS SIG/ C NR S SIG/ L. NASA	CAPABILITY BY D . A. LOWRY IGNATURE G. WILLIAMS SIGNATURE	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM CONCUR BOARD ACTION	MENDATION	THE METHOD C	SIG/ C NR S SIG/ L SIG/ L. NASA	G. WILLIAMS	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM CONCUR BOARD ACTION IMPL	MENDATION	THE METHOD C	SIG/ C NR S SIG/ L. NASA	G. WILLIAMS	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECON CONCUR BOARD ACTION IMPL	MENDATION	THE METHOD C	SIG/ C NR S SIG/ L. NASA	G. WILLIAMS	ECEMBER 15, 1972.
NASA TEAM CAPTAIN RECOM CONCUR BOARD ACTION IMPL ACTIONEE	MENDATION	THE METHOD C	SIG/ C NR S SIG/ L SIG/ L. NASA COMMENT.	CAPABILITY BY D . A. LOWRY GIGNATURE G. WILLIAMS SIGNATURE	ECEMBER 15, 1972.

TYPE OF REVIEW: PDR	DENTER	TOPU DICDOCTOTON	NUMBER 12-3
VEHICLE DOCKING SYSTEM	1 REVIEW	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
L. WILLIAMS	MSC	DOCKING	DOCKING SYSTEM
DISCREPANCY PROBLEM	TITLE PASSIVE LATC	H INDICATION	
and a state of the second state			
STRUCTURAL LATCH LAYO INDICATION AS DEFINED	UT V51-957440 DOES NO IN THE SYSTEM SCHEMA	T INCLUDE A SWITCH FOR TIC.	PASSIVE HOOK CLOSE
JUSTIFICATION			and the second
DASSIVE HOOV CLOSED T	NDICATION TO DECUIDED	EOD DACCINE INDICATIO	N TH ON
PASSIVE HOOK CLOSED I	NDICATION IS REQUIRED	FOR PASSIVE INDICATIO	N IN CM.
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	e*	1	
RECOMMENDATION			
PROVIDE SENSOR AS REQ	UIRED.		
COMPDACTORIS COLOENIE			
CONTRACTOR'S COMMENT		in the second	
CONTRACTOR'S COMMENT INSTALLATION OF SWITC	HES IS SHOWN ON OTHER	SPOT LAYOUTS.	
CONTRACTOR'S COMMENT INSTALLATION OF SWITC	HES IS SHOWN ON OTHER	SPOT LAYOUTS.	
CONTRACTOR'S COMMENT INSTALLATION OF SWITC	HES IS SHOWN ON OTHER	SPOT LAYOUTS. S <u>IG/C. L</u>	OWRY
CONTRACTOR'S COMMENT INSTALLATION OF SWITC	HES IS SHOWN ON OTHER	SPOT LAYOUTS. S <u>IG/C. L</u> NR SIGN	OWRY IATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. S <u>IG/C. L</u> NR SIGN	OWRY ATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. S <u>IG/C. L</u> NR SIGN	OWRY ATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. S <u>IG/C. L</u> NR SIGN	OWRY ATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. SIG/C. L NR SIGN , SIG/ L. G.	OWRY ATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION	HES IS SHOWN ON OTHER	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION RID	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI RID CLOSED	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION RID	HES IS SHOWN ON OTHER MENDATION	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI RID CLOSED	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION RID	HES IS SHOWN ON OTHER MENDATION ACTION SATISFIED -	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI RID CLOSED	OWRY ATURE WILLIAMS GNATURE
CONTRACTOR'S COMMENT INSTALLATION OF SWITC NASA TEAM CAPTAIN RECOM BOARD ACTION RID	HES IS SHOWN ON OTHER MENDATION ACTION SATISFIED -	SPOT LAYOUTS. SIG/C. L NR SIGN SIG/ L. G. NASA SI RID CLOSED ED SIGNATURE OF BOAN	OWRY ATURE WILLIAMS GNATURE RD CHAIRMAN

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TYPE OF REVIEW: PDR		a se site	NUMBER 12-4
VEHICLE	REVIEW	ITEM DISPOSITION	DATE 11 0.72
DOCKING MOD	ORGANIZATION	SYSTEM	
W. K. CREASY	MSC	DOCKING	DOCKING SYSTEM
DISCREPANCY PROBLEM	TITLE		
	LOADS FOR E	EXCURSION ENVELOPES	
NO LOADS ARE PROVIDED	FOR THE EXCURSION PC	DSITIONS SHOWN ON DE	RAWING V51-957420.
UISTIFICATION		in a second s	
DRAWING V51-957420 WA 1972. THE KINEMATIC CONDITIONS. MINIMUM CONVINCE THE USSR THA	AS USED AT THE PRELIMI ENVELOPE SHOWS CONDIT LOADS WHICH ARE REQUI AT THE US SYSTEM WILL	ENARY SYSTEMS REVIEW FIONS THAT CANNOT BI TRED TO REACH THESE NOT DAMAGE THE INTH	W WITH THE USSR IN OCTOBER, E REACHED UNDER DYNAMIC CONDITIONS ARE NECESSARY TO ERFACE.
RECOMMENDATION			
PROVII	DE LOADS DATA		
CONTRACTOR'S COMMENT			
NR WILL PROVIDE DATA	BY NOVEMBER 27, 1972.	•	· · · · ·
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		NR S	GIGNATURE
NASA TEAM CAPTAIN RECOM	MENDATION		
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in in internet. Kato na orenet. Manto na orenet.		NASA	SIGNATURE
BOARD ACTION			
NR PROVIDE DATA BY 2	7 NOVEMBER 1972 FOR:		
1. MAX EXCU	RSIONS EXPECTED.		
2. LOADS ASS	SOCIATED WITH THE MAX	EXCURSIONS	
en en en en en en an de de la composition en en			en en proposition en
ACTIONEE		SIGNATURE OF	BOARD CHAIRMAN
NR DUR DATE			() ()
		DVED 12.1-1.	Colonna 161

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TYPE OF REVIEW: PDR	REVIEW	TTEM DISPOSITION	NUMBER 12-5	
VEHICLE DOCKING MODULE		11111 2131 0511101	DATE 11-9-72	
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
W. K. CREASY	MSC	DOCKING	DOCKING SYSTEM	
DISCREPANCY PROBLEM	TITLE			
•	ALIGNMENT PIN ]	LOCK		
1. ALIGNMENT PIN DOES N 2. FAILURE OF ALIGNMENT	NOT LOCK WITHIN 5MM ( PIN LOCK SYSTEM COU	DE GUIDE RING TRAVEL FO JLD PREVENT GUIDE RING	OR PASSIVE POSITION. FROM SEATING.	4 9 3
		* ***		
JUSTIFICATION				
<ol> <li>IED 5004 REQUIRES TH GUIDE RING.</li> <li>THIS ITEM IS A PSR F</li> </ol>	HE ALIGNMENT PIN TO PREQUIREMENT.	BE LOCKED BY THE LAST	5MM TRAVEL OF THE	
	·*			
RECOMMENDATION		1		
11				
CHANGE THE DESIGN TO AC	COMPLISH THESE REQUI	IREMENTS.	A	
				•
CONTRACTOR'S COMMENT NR IS IMPLEMENTING CHAN	NGE AT PRESENT TIME.	WILL PRESENT AT NOVE	MBER 27 MEETING.	
	•	· ·		
	•	NR SI	GNATURE	
NASA TEAM CAPTAIN RECOM	MENDATION	and a set of the set o		
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		NASA	SIGNATURE	
a ganga ang kang ang				
BOARD ACTION		•		
IMPLEMENT PER CONTRA	CTOR'S COMMENTS			2
<ul> <li>\$</li> </ul>	RID (	LOSED		
ACRITONEE		STONATION OF D	DARD CHATRMAN	
CLOSED	APPRC	VED SIGNATORE OF BO		
DUE DATE	ODISAPP	PROVED 1. 14. (	takaning 16	2
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TYPE OF REVIEW: PDR	BENTEN TWEN	DISPOSITION	NUMBER 12-6
VEHICLE DOCKING MODULE	REVIEW TIEF	DISPUSITION	DATE 11-9-72
INITIATOR ORGANIZ	ZATION SY	STEM	TEAM NAME
L. WILLIAMS MS(	<b>c</b> as pec	DOCKING	DOCKING
DISCREPANCY PROBLEM TITLE			and ja takini takini tak
, AT	TENUATUR THERMAL	FROIDCITON	
a) THE ATTENUATOR THERMAL PROT LOWER TEMPERATURE LIMIT.	ECTION DESIGN RES	ULTS IN THE ATT	ENUATOR EXCEEDING THE
b) THE DESIGN RESULTS IN A CLO	SE SLIDING FIT (O	.010) WITH THE	ATTENUATOR SURFACES.
JUSTIFICATION		and an	
a) FROZEN ATTENUATORS WILL NOT	FUNCTION PROPERL	Y.	
ь) THE THERMAL PROTECTION SHOU	LD NOT INTERFERE	WITH ATTENUATOR	STROKING.
RECOMMENDATION			
a) PROVIDE A DESIGN WHICH MEET	S THE MISSION REQ	UIREMENTS.	
<ul> <li>b) PROVIDE A DESIGN WHICH CANN OR RETRACTION.</li> </ul>	OT INTERFERE WITH	ATTENUATOR EXT	ENSION
		•	
CONTRACTOR'S COMMENT			
AND (b) AND MAKE RECOMMENDATIO	NS BY DEC. 15, 19	72.	ITEMS (a)
		:	
till a strategicter om te strategicter. Strategicter strategicter om strategicter strategicter strategicter strategicter strategicter strategicter strat		NR	SIGNATURE
NASA TEAM CAPTAIN RECOMMENDATIO	ON		
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1 • [ η] see is a life of an interaction of the second secon	n den El constante	NAS	A SIGNATURE
BOARD ACTION	n an	alan da da da ser a cara a	
IMPLEMENT PER CONTRACTOR'S C	OMMENT.		
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			10
ACTIONEE NR	APPROVED	SIGNATURE OF	BOARD CHAIRMAN
DUE DATE 12-15-72	DISAPPROVED	RAC	blonna 163

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TYPE OF REVIEW: PDR	REVIEW	TTEM DISPOSITION	NUMBER 12-7
VEHICLE DOCKING MODULE		IIIM DIGIGSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
W. K. CREASY	MSC	DOCKING	DOCKING
DISCREPANCY PROBLEM	TITLE INTERFACE SENSOR	LOCATION AND LOADS	
· · ·			
THE SENSORS AND ASSOCIA (IED 50004) HAVE NOT BE	TED LOADS WHICH AFFEG	T THE PHYSICAL INTERFA	CE
2 A	a a a a a a a a a a a a a a a a a a a	•	
JUSTIFICATION		-	
THIS DATA IS REQUIRED T MEETING OF WORKING GROU	O REACH AN AGREEMENT IP 3 IN DECEMBER 1972.	AND TO UPDATE IED 5000	04 AT THE USSR - US
		1	
RECOMMENDATION			
INDOMESTICAL TON			
PROVIDE INTERFACE SENSO	R LOCATIONS AND FORCE	S BEFORE THE DECEMBER	MEETING.
			· · · · · · · · · · · · · · · · · · ·
			· · · · · · · · · · · · · · · · · · ·
CONTRACTOR'S COMMENT			
NR WILL PROVIDE LOCATIC VALUES ON OTHER LOCATIC	NS AND ACTUAL VALUES NS BY NOV. 27, 1972.	WHERE AVAILABLE AND CA	LCULATED
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l an an failinge as supplied to be a constructed to	i ing get	NR STGN	4 TIR E.
NASA TEAM CAPTAIN RECOM	MENDA PTON		
4		al	
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		NASA SIC	SNATURE
BOARD ACTION			
SEE CONTRACTOR'S COMMEN	IT.		
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			1.
ACTIONEE NR	APPROVE	D SIGNATURE OF BOAR	D CHAIRMAN
DUE DATE 11-27-72	ODISAPPRO	VED R.A. Col	Conna 164

and the second			
TYPE OF REVIEW: PDR			NUMBER 12-8
VEHICLE DOCKING MODULE	C REVIE	EW ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
W. K. CREASEY	MSC	DOCKING	DOCKING
DISCREPANCY PROBLEM	TITLE		
•	ATTENUATOR PO	DSITION INDICATION	
a era la el se de la se		•	
THE INDICATION SYSTEM	IS SENSITIVE TO MAN	VY TOLERANCES AND COULD EXTENDED.	POSSIBLY INDICATE
		· · ·	
JUSTIFICATION			
POTENTIAL FALSE INDICA	FION.		
6	·		
			-
	·*	7	
RECOMMENDATION			
PROVIDE A DESIGN THAT	IS LESS SENSITIVE	TO TOLERANCES AND NUMBE	R OF COMPONENTS.
		-	5 C
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			<i>y</i>
CONTRACTOR'S COMMENT			
NR IS CURRENTLY RE_EXA	MINING THE INDICATO	OR SWITCH MECHANIZATION	AND IT APPEARS SOME
SIMPLIFICATION CAN BE	ATTAINED AND THE DE	ESIGN DESENSITIZED. AN	ISWER BY DEC. 15, 1972.
	•		5
		t.	
		NR SI	GNATURE
NASA TEAM CAPTAIN RECOM	ENDATION		
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land a start and a start			
		NASA S	SIGNATURE
BOARD ACTION			
IMPLEMENT PER CONT	RACTOR'S COMMENT.		
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		· · · ·	
ACTIONEE NR			
	APPRC	VED SIGNATURE OF BO	ARD CHAIRMAN
DUE DATE 12-15-72	DISAPP	ROVED R.A. Co	loung 11-
			165

TYPE OF DEUTEN.	and the second		President and a second s
	DR REVIEW	ITEM DISPOSITION	NUMBER 13-1
VEHICLE			DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
R. CLICKNER	PT4		GROUND TEST
DISCREPANCY PROBLEM	TITLE DEFINITION OF	יידוורקס האידאסדוורק	አጩአነጥ
•	DEFINITION OF	TEST EQUIFERNI REQUIRE	PICAVI
TEST EQUIPMENT BEEN IDENTIFIEI	REQUIREMENTS FOR MAJO	OR GROUND TESTS AT MSC	HAVE NOT
		· .	
JUSTIFICATION	C.4		
THE EQUIPMENT I MODIFICATIONS A ON SCHEDULE.	INTERFACES FOR DDTS AN ND PLANNING EFFORT OF	ID ECLSS BREADBOARD TES MSC ORGANIZATIONS TO	TS REQUIRE SUPPORT TESTS
RECOMMENDATION			
ND DOUTDE COUL			
NR PROVIDE SCHE	DULE FOR ABOVE.		
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CONTRACTOR'S COMMENT			
			DOMA DI TOUTID DOD
l I I	ICD MEETINGS FOR ROISS 11-13-AND 11-14-72 ANI INTERFACE MEETINGS WII	B. B. TEST HAVE BEEN ) 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11	OR DDTS AND TV -22-72.
1 1 1	OD MEETINGS FOR ECISS 11-13-AND 11-14-72 ANI INTERFACE MEETINGS WII	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGN	established FOR OR DDTS AND TV -22-72.
NASA TEAM CAPTAIN RECOM	TENDATION	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 MR SIGN	established FOR OR DDTS AND TV -22-72.
NASA TEAM CAPTAIN RECOM	MEETINGS FOR FOISS 1-13-AND 11-14-72 ANI INTERFACE MEETINGS WII MENDATION	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 MR SIGN/	established FOR or DDTS AND TV -22-72.
I I NASA TEAM CAPTAIN RECOM	MENDATION MASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGNA	established FOR OR DDTS AND TV -22-72.
I I NASA TEAM CAPTAIN RECOM	MEETINGS FOR ECISS 11-13-AND 11-14-72 AND INTERFACE MEETINGS WII MENDATION NASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGN/	established for or DDTS AND TV -22-72.
I I NASA TEAM CAPTAIN RECOM	MEETINGS FOR ECISS 1-13-AND 11-14-72 ANI INTERFACE MEETINGS WII MENDATION NASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGN NASA SIG	Clupter
NASA TEAM CAPTAIN RECOM	MENDATION MASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGN NASA SIG	Clupting NATURE
NASA TEAM CAPTAIN RECOM	MENDATION MASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 MR SIGN/ NASA SIG	Clupture
NASA TEAM CAPTAIN RECOM	MENDATION MASA CONCURS	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 MR SIGNA NASA SIG	Clupter
NASA TEAM CAPTAIN RECOM	ER CONTRACTOR'S COMME	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 WR SIGN/ WR SIGN/ NASA SIG	Clupture
NASA TEAM CAPTAIN RECOM	ER CONTRACTOR'S COMME	Russ NT	Clupture
NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEMENT PI ACTIONEE	ER CONTRACTOR'S COMME	B. B. TEST HAVE BEEN 12-15-72. SCHEDULE F L BE ESTABLISHED BY 11 MR SIGNA NASA SIGNATURE OF BOARD	Cluber Cluber Cluber NATURE D CHAIRMAN
NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEMENT PA ACTIONEE NR/NASA DUE DATE	ER CONTRACTOR'S COMME	Russ NT SIGNATURE OF BOAR	Chipmen D CHAIRMAN

TYPE OF REVIEW: PDR	DIVITE	THEN DIGDOGTHION	NUMBER 14-1
VEHICLE DOCKING MODULE	REVIEW .	TIEM DISPOSITION	DATE Nov. 8, 1972
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
S. NASSIFF	NASA	STRUCTURES	MOCKUPS
DISCREPANCY PROBLEM	TITLE		
•	LOCATION O	F 0 <sub>2</sub> & N <sub>2</sub> TANKS ON DM	MOCKUP
LOCATION OF 02 & N2 TYPE ARTICLE.	TANKS ON DM MOCKUP DC	NOT REFLECT CURRENT L	OCATION ON FLIGHT
	· • •	* <b>.</b>	
JUSTIFICATION	and the second		
CONFIGURATION OF DM	MOCKUP SHOULD REFLECT	FLIGHT TYPE ARTICLE.	
	**	1	
RECOMMENDATION			
CONFIGURE TANKS ON I	M MOCKUP ACCORDINGLY.		
CONTRACTOR'S COMMENT	ا راز مرجو مورد ر		
MOCKUP TANKS WILL BE	RELOCATED TO REFLECT	CORRECT CONFIGURATION	•
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l and a second	Constant and	NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATION		
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lo, serie a la serie s		NASA SI	GNATURE
BOARD ACTION			
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NR RI	ELOCATE TASKS.		
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ACTIONEE		D SIGNATURE OF BOAR	D CHAIRMAN
DUE DATE DM CDR		DAQ	Acres
	U DISAPPRO	NEW IS.H. Ca	Conna 167

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		and the state of the		a series and the series which we	n presidente de la constante d La constante de la constante de
TYPE OF REVIEW: CDR		REVIEW TTEM DISPOSITION		DISPOSITION	NUMBER 15-1
VEHICLE CSM 111	a Maria			DIDIOSITION	DATE 11-9-72
INITIATOR	ORGANI	ZATION	SYS	TEM	TEAM NAME
R. CLICKNER	PT4			1 	TEST & CHECKOUT
DISCREPANCY PROBLEM	TITLE	TEST & CHEC	KOUT	CLARIFICATION	
IDENTIFY THOSE COMPONE RELIEF VALVES, SWITCHE ARE NOT INVOLVED IN TH CSM 111 M TESTING AT D	NTS ("BI S, ETC.) E ASTP M OWNEY.	ACK BOX, MAJO THAT WERE VE MODIFICATIONS	R COM RIFIE AND W	PONENTS, I.E., VA D DURING THE ORIG VILL NOT BE VERIFIN	LVES, REGULATORS, CHECK VALVES, INAL TESTING OF CSM 111 AND ED OR EXERCISED DURING THE
WORTDIALETON					
JUSTIFICATION					
TO ALLOW EVALUATION OF	VEHICLE	STATUS AND T	O PRO	VIDE BASELINE FOR	CHECKOUT AT KSC.
		:			•
	n 2		1		e e e e e e e e e e e e e e e e e e e
RECOMMENDATION					
PROVIDE A LISTING					
		,			<ul> <li>S</li> </ul>
				na an ta' in ta' in	1
CONTRACTOR'S COMMENT					· · · · · · · · · · · · · · · · · · ·
NR CONCURS - WILL PROV	IDE LIST	ING BY 12-10-	72		
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· · ·		,		SIG <u>/ E. E.</u>	DALE
				NR SIGN	ATURE
NASA TEAM CAPTAIN RECOM	MENDATI	ON			
NASA CONCURS	1			•	
		•		Puese	halfman
and the second		2 101 p		SIG/ RUSS CI	LICKNER
•				NASA SI	GNATURE
BOARD ACTION					
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INPLEMEN	VT PER C	ONTRACTOR'S CO	MMEN'	TS .	
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AGUTONUE				OTOMOTOT OT TO	
NOTIONEE MR		APPROVI	ED	SIGNATURE OF BOAL	CHAIRMAN
DUE DATE		DISAPPRO	OVED	R. H. C	stange 168

YPE OF REVIEW: PDR	DIST. TEL	TOPEN DISPOSITATION	NUMBER 16-1
EHICLE DOCKING MODU	IE REVIEW	TIEM DISPOSITION	DATE 11/8/72
NITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
EDSIEVERS	MSC RELIABILITY	DOCKING	RELIABILITY
ISCREPANCY PROBLEM	TITLE RIGGING SE	ENSITIVITY OF DOCKI	NG SYSTEM COMPONENTS ·
A DJUSTMENT OF THE AND INVOLVES ADJU APPLICATION OF 18 FROM DTT 574800) APPEARS THAT IT W WHICH HAVE TO BE JUSTIFICATION NUMBEROU	CAPTURE LATCHES FOR STMENTS AS FINE AS OO LB LOAD WHILF MEA THE DTT 574401 STRUC VILL BE EQUALLY DIFFI CAREFULLY ADJUSTED. S PROBLEMS HAVE OCCU	R PROPER OPERATION 1 COOL <u>+</u> .0005, 1/8 T SURING 4 LB TRIP F TURAL LATCH ASSY D CULT TO RIG AND IT URRED ON THE APOLLO	REQUIRES 12 SEPARATE STEPS JRNS OF SET SCREWS, AND ORCES. THESE ARE EXAMPLES NG IS NOT COMPLETE BUT IT ALSO CONTAINS MICROSWITCHES DOCKING LATCHES AND THE
DOCKING PROBES WH TO THE SENSITIVIT	NICH HAVE BEEN ATTRIN Y OF THESE DESIGNS T	BUTED TO DESIGN AND TO RIGGING VARIATION	MANUFACTURING TOLERANCES AND NS.
	9*	1	
RECOMMENDATION 1. CON INSTALLATIONS TO OPERATIONAL PROBI OF THE ASSEMBLY A 3. IMPLEMENT THE	IDUCT A WORST CASE AN IDENTIFY AND ELIMINA EMS. 2. DESIGN THE ND RIGGING VARIATION NECESSARY MANUFACTU DE ELIMINATED AND THE	VALYSIS OF THE SEVEN TE POSSIBLE FUTURE DEVELOPMENT TEST NS CAN BE EVALUATED JRING AND RIGGING PH	RAL LATCHES AND SWITCH SOURCES OF RIGGING AND PROGRAM SO <b>THAT</b> THE EXTREMES AND LIMITS ESTABLISHED. ROCEDURES, TO ASSURE THAT MARC
INAL CONDITIONS A	ING SEIMINAISD AND IF	AT CRITICAL PARAME	TERS ARE A DEQUATELY CONTROLLEI
INAL CONDITIONS A	RE ELIMINATED AND T	AAT CRITICAL PARAME	TERS ARE ADEQUATELY CONTROLLEI
NR WILL: 1. PR 20 MR WILL: 1. PR 2. DE PR .3. AC	ROVIDE WORST CASE ANA FINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASH	AT CRITICAL PARAME LYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT	TERS ARE ADEQUATELY CONTROLLED 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1.
NR WILL: 1. PR 2. DE PR 3. AC	ROVIDE WORST CASE ANA EFINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASI	AT CRITICAL PARAME LYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT NR S	TERS ARE ADEQUATELY CONTROLLE 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE
NR WILL: 1. PR 2. DE PR 3. AC	ROVIDE WORST CASE ANA FINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASE	ALYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT NR S	TERS ARE ADEQUATELY CONTROLLE 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE
NR WILL: 1. PR 2. DE PR 3. AC	ROVIDE WORST CASE ANA FINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASE MENDATION	ALYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT NR S	IERS ARE ADEQUATELY CONTROLLEI 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE
NR WILL: 1. PR 2. DH PR 3. AC	AD THE BLIMINATED AND THE BLIMINATED AND THE COVIDE WORST CASE ANA EFINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASE MAENDATION	ALYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT NR S	TERS ARE ADEQUATELY CONTROLLE 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE
NR WILL: 1. PR 2. DE 2. DE 2. AC NASA TEAM CAPTAIN RECOM	ROVIDE WORST CASE ANA FINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASH MENDATION	ALYSIS BY DECEMBER PLANS AND PROGRAM T EXTREMES AND LIM ED ON RESULTS OF IT NR S	TERS ARE ADEQUATELY CONTROLLE 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE SIGNATURE
NR WILL: 1. PR 2. DE PR 3. AC	ROVIDE WORST CASE ANA FINE CHANGES TO TEST ROVIDE REASONABLE TE COMPLISH ITEM 3 BASH MENDATION  IR PROVIDE RECOMMENDA COMMENTS BY 1-10-73	ALYSIS BY DECEMBER T PLANS AND PROGRAM ST EXTREMES AND LIM ED ON RESULTS OF IT NR S NASA	TERS ARE ADEQUATELY CONTROLLE 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE SIGNATURE DNTRACTOR'S
INAL CONDITIONS A ROMTRECOPORTS XXEEXIXXX NR WILL: 1. PR 2. DH PR 3. AC NASA TEAM CAPTAIN RECON BOARD ACTION N C	ROVIDE WORST CASE ANA EFINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASH MAENDATION  IR PROVIDE RECOMMENDA COMMENTS BY 1-10-73	ALYSIS BY DECEMBER T PLANS AND PROGRAM ST EXTREMES AND LIM ED ON RESULTS OF IT NR S NASA	IERS ARE ADEQUATELY CONTROLLEI 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE SIGNATURE DNTRACTOR'S
INAL CONDITIONS A ECONTRECTION VY XUESTINAX NR WILL: 1. PR 2. DE PR 3. AC NASA TEAM CAPTAIN RECON BOARD ACTION N C ACTIONEE NR	ROVIDE WORST CASE ANA EFINE CHANGES TO TEST ROVIDE REASONABLE TEST COMPLISH ITEM 3 BASH MENDATION  IR PROVIDE RECOMMENDA COMMENTS BY 1-10-73	ALYSIS BY DECEMBER PLANS AND PROGRAM ST EXTREMES AND LIM ED ON RESULTS OF IT NR S NASA TIONS TO MSC PER CO SIGLATURE OF 1	TERS ARE ADEQUATELY CONTROLLET 31, 1972 IMPACT TO ITS BASED ON ITEM 1. EM 1. IGNATURE SIGNATURE DNTRACTOR'S EOARD CHAIRMAN

TYPE OF REVIEW: PDR	BENIEW	TTEM DISPOSITATION	NUMBER 17-1
VEHICLE DOCKING MODULE	E	TIEM DISTOSTITON	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
O. LINDSEY	NASA/MSC	ECLSS	SAFETY
DISCREPANCY PROBLEM	TITLE		
· · · · · · · · · · · · · · · · · · ·	N <sub>2</sub> /O <sub>2</sub> TANK BUR	RST DISCS	
FAILURE IN FLIGHT COUN (EXAMPLE: POSSIBLE DAM	LD CONSTITUTE A HAZAR MAGE TO SOYUZ SOLAR R	AD TO CREW OR MISSION S PANELS)	BUCCESS
JUSTIFICATION			
THE BURST DISCS WERE ( THAT THE UNKNOWNS FOR SAFETY FACTORS OF TANK	CONCEIVED AS GSE PROT FLIGHT FAILURE CASE KS, ETC.	TECTION DURING SERVICIN OUTWEIGH GSE CONSIDER	NG. SAFETY POSITION IS NTIONS, IN VIEW OF
		1	
RECOMMENDATION			
CAP OR DELETE BURST D	TSCS		
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			2
CONTRACTOR'S COMMENT	- 		
NR WILL TAKE EITHER AG	CTION IF DIRECTED BY	NASA.	• • •
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NASA TEAM CAPTAIN RECOM	MENDATION	/	
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		CEte NASA SI	o 6 Lend Sug
DOADD ACTION			
Ing lement a	ops ter La ist	discs to be 1	ushilled on part
atter trules a	re sourcesp		
i de la companya de l La companya de la comp			
AGRITONICE	1		
ACTIONEE A/122	APPROVI	ED SIGNATURE OF BOAT	RD CHAIRMAN
DUE DATE	DISAPPRO	OVED Blan	P. Common Ilio
e	<u>`</u>		

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TYPE OF REVIEW:	PDR		י גאינד נזינס	TOTAL DISPOSITON	NUMBE	R 17-2	
VEHICLE ASTP	DM		- REVIEW ITEM DISPOSITION		DATE	11_0_72	10-5
INITIATOR	in the second	ORGANI	ZATION	SYSTEM	TEAM	NAME	
O. LINDSEY		NASA MSC				SAFETY	- 423
DISCREPANCY PROB	LEM	TITLE		••••••			
· ·	•		HATCH DISASS	SEMBLY	ż		
IT IS SUFFIC	NOT PRE CIENT CI	SENTLY EARANC	KNOWN IF TEST ES FOR OPERATI	AND CHECKOUT INCON OF DISASSEMBL	CLUDES VERIFI ING HATCH	CATION OF	· · · · · · · · · · · · · · · · · · ·
				•			
JUSTIFICATION							
HA	ATCH DIS	SASSEME	BLY CAPABILITY	IS A CREW SAFETY	ITEM		,
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		•••		·	and the product of the same state of the same state of the		
RECOMMENDATION		TNOT		V DEMONGRENT ON			
· · · ·	EST PIAT	1 INCLU	IDES DISASSEMBL	I DEMONSTRATION	•.		
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CONTRACTOR'S COM	MENT				terini administration anno 12 anno 20 antor		a analynyn yn renninge
THE REQ APO	HI-FI N UIRED. LLO HATC	THIS S	WILL BE AVAILA AME DEN ONS TRAT	BLE FOR THIS DEM ION WAS ACCOMPLE	ONSTRATION WE SHED ON THE	ΈN	
•		÷ .		-	D CTONADDD		
				P	R SIGNATURE		
NASA TEAM CAPTAI	N RECOM	MENDA'I	ION		- 1920 - 1920 - 1920 - 1920		
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BOARD ACTION	a can an a		a dhun ng farahi falah langan ng punungan. P		a ana ana ang ing ing aking ang		
• N	R INCLUI	DE HATO	H DISASSEMBLY	IN MU AND TRAINE	R PLAN		
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ACTIONEE				STGNATURE	OF BOARD CHAT	FRMAN	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
/ NR			APPROV	ED		LANG WELL	
DUE DATE CLOSE	D		DISAPPR	OVED K.A.	Colon	ng	171
A CALL AND							

TYPE OF REVIEW: PDR			NUMBER
VEHICLE ASTP DM	REVIEW	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
C. LINDSEY	NA SA MSC		SAFETY
DISCREPANCY PROBLEM	TITLE		
· · ·	LACK OF FI	RE EXTINGUISHER PORTS	and the second se
FIRE EXTINGUISHE INJECTING SUPPRE	R IS PROVIDED, BUT N SSANT BEHIND PANELS.	O PROVISION IS MADE (	PORTS) FOR
$\tau \sim s$		· -	
JUSTIFICATION	<ul> <li>Second second sec</li></ul>		
CREW SA	FETY		1
	·	×	
			•
	**	1	
RECOMMENDATION			
PROVIDE	SUFFICIENT PORTS, A	S IN CM	
		4.	
CONTRACTOR 'S COMMENT	NR WILL REVIEW THE	REQUIREMENT FOR FIRE	EXT. PORTS IN THE SYSTEMS
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION.	REQUIREMENT FOR FIRE UST BE COVERED DURING	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION.	REQUIREMENT FOR FIRE UST BE COVERED DURING	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION.	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION.	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MODULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NASA	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM	NR WILL REVIEW THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NASA	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NASA	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NASA	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION ENT PER CONTRACTOR'S APPROV	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NASA COMMENT	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE SIGNATURE
CONTRACTOR'S COMMENT MCDULE. FOR GROUND IN THE HORIZONTAL P NASA TEAM CAPTAIN RECOM BOARD ACTION IMPLEM ACTIONEE NR DUE DATE	NR WILL REVIE: THE OPFRATIONS, PORTS M OSITION. MENDATION	REQUIREMENT FOR FIRE UST BE COVERED DURING NR SI NR SI NASA COMMENT	EXT. PORTS IN THE SYSTEMS WORK PERIODS AND WHEN GNATURE

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TYPE OF LEVIEW: CDR	10077 (107	A THEM DECIDE THEORY	NUMBER 20-1
VEBTCLE CSM 111	HEV LEV	A TIEM DISPOSITION	DATE NOV. 9, 1972
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
J. T. TAYLOR	NASA	INS TRUMENTA TION	THERMAL
DISCREPANCY PROBLEM	TITLE SPS OXIDIZER	SUMP TANK	
EXISTING SENSORS ( TEMPERATURE.	ON FORWARD DOMES ARE	5 NOT ADEQUATE TO ASSES	ES BULK PROPELIANT
JUSTIFICATION TANK DOME SENSORS PROPELLANT. ANAL READOUT OF THE BUI TANK AFT DOME WOU TEMPERATURE BASED	, BY ANALYSIS, WILL YSIS SHOWS A 12°F M LK PROPELIANT TEMPEN LD ELIMINATE THE PRO ON ANALYSIS AND TH	INDICATE 5 TO 8°F LOW ARGIN ON THE LOWER LIM RATURE FROM A SENSOR LO OBLEM OF INDIRECTLY DE E USE OF DATA FROM A RY	ER TEMPERATURE THAN BULK IT OF 30°F. A DIRECT OCATED ON THE OXIDIZER FERMINING PROPELLANT EMOTE SENSOR.
RECOMMENDATION	1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1		
ADD A SENSOR TO T	HE AFT DOME OF THE S	SPS OXIDIZER SUMP TANK	AFT DOME.
CONTRACTOR 'S COMMENT			
NR WILL EVALUATE OXIDIZER SUMP TANI	THE COST AND SCHEDU K AFT DOME FOR PURP	LE IMPACT OF ADDING A S OSES OF GROUND MONITOR:	SENSOR TO THE SPS ING,
		crc/ p c	MEDILOFE
and the second sec		NR SI	GNATURE
NASA TEAM CAPTAIN RECO	MMENDATION		
NASA CONCURS WITH	CONTRACTOR'S COMME	NT.	
an an ann an ann an an an an an an an an	•	SIG/_ <u>J</u> NASA	I. TAYLOR SIGNATURE
POARD ACTION			
South HOLLOW			
NASA CONCURS WITH	CONTRACTOR'S COMMEN	NT	i.
1			
AGTTONEE NR	APAR	OVED SIGNATURE OF B	OARD CHATREAN
DUE DATE	T DISAPI	PROVED RA	Colonna 173
			want at a second or our and approximate and a second or a second or a second or and an address of the second of the

TYPE OF REVIEW: CDR	DEVITE.	מפדת איזיייז	OSTUTON	NUMBER 20-2
VEHICLE CSM 111	TEVIEW .			DATE NOV. 8, 1972
TNTTTANOR	PCANTZANTON	SYSTEM		TEAM NAME
INITIATOR	AIGANIZATION	DIDIER		TEAH WAND
J. T. TAYLOR	NASA	INSTR	UMENTATION	THERMAL
	ግሞቪድ	I		
DISCREPANCY PROBLEM	RCS HELIUM	& PRIMAR	Y FUEL TANK	TEMP SENSORS
THE RCS HELIUM TANK TEM FUEL TANKS SENSORS, WHI	P. SENSOR RANGE IS CH HAVE A RANGE OF	0 - 100°F 0 - 150°F	AND ON LOW I	BIT RATE. THE PRIMARY H BIT.
UISTIFICATION		-	and - Constrained - to be any new database of the	
THE RCS HELIUM TANK TEM ON HIGH BIT RATE AND TH TO AVOID POTENTIAL PROP AVAILABLE FOR REAL TIME	PERATURES ARE EXPEC EREFORE NO HISTORY ELLANT TANK TEMPERA MISSION SUPPORT OR	TED TO EX DATA WILI TURE PROE ANOMALY	CEED 100°F. BE AVAILABLI LEMS. THEREI RESOLUTION.	THE PRIMARY FUEL TANKS ARE E TO DETERMINE TRENDS OR FORE, ADEQUATE DATA IS NOT
RECOMMENDATION	104 e e *			
PRIMARY FILET. TANK SENSO	RS SREOTIN SREOTIN	SR5075	AND SP 5076	T SHOULD BE CHANCED TO
I OW RTT RATE BY USING A	NY AVATIABLE CHANNE	TS OP BY	SWITTCHING PC	S UFITIM TANK SENSORS
SPECI 2T SPECI T SPECI	ST and SP 5016T TC	UTCU DI	DATE AND HE	TNC THESE CHANNELS
SR30131, SR30141, SR301	isi, and Sk Soloi ic	niun bi.	L RAIL AND US	ING THESE CHANNELS.
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CONTRACTOR'S COMMENT		and he has an end of the second		an a
NR WILL PERFORM AN EVAL OF DATA AVAILABILITY AN REQUIRED, THE RECOMMEND STUDY WILL BE COMPLETE	UATION OF THIS SITU ID TEMPERATURE RESPO DED CHANCES TO THE I BY 12-8-72.	NATION, IN INSE TIME INSTRUMENT	ICLUDING CONS FOR CRITICAL TATION SYSTEM	IDERATION OF FREQUENCY RCS COMPONENTS. IF WILL BE DEFINED. THIS
be a set of the set of the			NR SIG	NATURE
NASA TEAM CAPTAIN RECOMME	NDATION			
NASA CONCURS WITH CONTR	ACTOR'S COMMENT.		• •	*
	4			
a second se			NASA S	IGNATURE
POADD ACTION				
BOARD ACTION				
COMBINE WITH	ACTION OF RID 21-2.		· •	
				· · ·
ACTIONEE	0		NATURE OF BO	ARD CHAIRMAN
	APPROV.	ED	17 1 1	/7
DUE DATE CLOSED	DISAPPR	OVED /	R.H.C.	louce 174
				114

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TYPE OF REVIEW: PDR	DENTEN	THEN DISDOCTOTON	NUMBER 20-3	
VEHICLE DOCKING MODI	JLE	TIEM DISPOSITION	DATE NOV. 9, 1972	
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
J. TAYLOR	NASA	THERMAL	THERMAL	
DISCREPANCY PROBLEM	TITLE BASELINE TI	ERMAL DESIGN		
AS A RESULT OF THE OC' THERMAL DESIGN TIMELIN	TOBER 1972 USSR - USA, NE OF THE DM. (PER A	MEETING, IT IS NECESSA TTACHMENT)	ARY TO MODIFY THE BASELINE	
		• -		
THE DESIGN MUST BE DE AND THE EFFECTS OF FO	FINED TO ACCOMMODATE RCED ATMOSPHERIC EXCH	A FOURTH TRANSFER, INCH ANGE WITH THE CM AND ON	REASED DM OCCUPANCY,	
RECOMMENDATION				
NR SHOULD USE THE TIM THE MINUTES.	ELINE DEFINITION AND	EQUIPMENT PROFILES INC	LUDED IN	
CONTRACTOR'S COMMENT				
THIS IS A NEW REQUIRE OF THIS CDR/PDR.	MENT AND NOT AN ACCEP	TABLE RID SUBJECT BASE	O ON THE GROUNDRULES	
	- 	NR SIGN	ATURE	
NASA TEAM CAPTAIN RECOM	MENDATION			
DIRECTION WILL BE PRO IMPLEMENTED IMMEDIATE	VIDED. HOWEVER, THE T LY TO FACILITATE THE	HERMAL DESIGN DEFINITION.	ON SHOULD BE	
	*			
· NASA SIGNATURE				
BOARD ACTION				
1) Implement 11	ese requirentent	to and the requir	compats defined in the	
2) Provide new scheduly for the thermal design to verthat the above 11-17-72				
ACTIONEE	APPROVE	D SIGNATURE OF BOAR	RD CHAIRMAN	
DUE DATE Scheckelle by 11	-17 72 DISAPPRO	WED Bly	S. Curry "/ "75	

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## T = TIME OF DOCKING

DAY 1 (HOT MISSION)

	CM/DM	DM	DM/OM + COSMO. DM ORIENT.	JOINT • ACTIVITY IN OM	OM/DM	DM	DM/CM	REST PERIOD	
PURGE	CONT.	N/A	CONT.	15 MIN (4:15 4:30)	ĊONT.	N/A	CONT.	N/A	
НАТСН	OPEN	CLOSED	OPEN	OPEN	OPEN	CLOSED	OPEN	CLOSED	
E. T. D	+1 1:1	2:30 1:	32:30 2	:15 4:	30 4:42	:30 5:0	2:30 5	:15 15:1	15

DAY 2 (HOT MISSION)

HOT CASE -B/B TRANSFER

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•	1	1	ROUND TRIP TRA	NSFER	an a		۱ <sup></sup> .		0CCU 22:1	RS AT 5 TO 23	:45
	CM/DM	DM	DM/0 <b>M</b>	OM/DM	DM	DM/CM .	J/A	REPEAT TRANS. SEQ.	J/A	REPEAT TRANS. SEQ.	
PURGE	CONT.	N/A	CONT.	CONT.	N/A	CONT.	15MIN			÷.,	
HATCH	OPEN	CLOSED	OPEN	OPEN	CLOSED	OPEN	OPEN				
E. T. 1	5:15 15:3	27:30 15	47:30 16	5:00 1	6:12:30	16:32:30 1	6:45 2	0:45 ·2	2:15	28 27:15	:45 + ?

COLD MISSION DIFFERENCES 1 REST PERIOD - 12 HRS CM/DM; DM/OM, OM/DM 7½ MIN (VS 12½ FOR HOT) DM ALONE 15 MIN NO COSMONAUT ORIENTATION IN DAY 1

COLD 12 HOT 10

\*

Fre on while proplem DM -15 min of hores in people out -

		in a second s			
TYPE OF REVIEW: PDR	REVIEW	TTEM DISPOSITION	NUMBER 20-4		
VEHICLE DOCKING MODULE	EHICLE DOCKING MODULE		DATE 11-9-72		
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME		
J. T. TAYLOR	NASA	THERMAL	THERMAL		
DISCREPANCY PROBLEM	TITLE				
•	DM THERMAL DES	SIGN TRADE-OFFS			
PRESENT NR APPROACH TO USE OF HEATERS VERSUS CONSTRAINTS.	DEFINE THE DM BASELI INTERNAL EQUIPMENT FO	INE THERMAL DESIGN DOES OR MAKEUP HEAT AND ASSO	5 NOT PROVIDE TRADEOFFS BETWEEN DCIATED ATTITUDE		
		8			
JUSTIFICATION					
CURRENT ANALYSIS SHOWS FOR TRANSFERS IN ANY A SPACECRAFT ATTITUDE ST	S THAT THE AVAILABLE F ATTITUDE. ALSO, THE I CANDPOINT.	EQUIPMENT HEAT LOADS DO DM WILL BE MORE CONSTRA	O NOT MEET THE REQUIREMENT AINING THAN THE CSM FROM A		
		1			
RECOMMENDATION					
NR SHOULD PROVIDE DESI	IGN TRADEOFF FOR THE H	FOLLOWING: .			
	MARE UP HEAR (NO' A TH				
2) HEATER ONLY FOR 2) HEATER AND EQUIP 3) EQUIPMENT ONLY A	MAKE-UP HEAT (NO ATT) PMENT AND RESULTING ATTITUDH	E CONSTRAINTS)			
CONTRACTOR'S COMMENT					
THE MAKE-UP HEAT OBTAI CREW ENTRY AT ANY TIMP AND STILL MAINTAIN 60 CONSTRAINTS	INED FROM THE DM EQUIH E FOLLOWING A 6 HOUR ( DEG F DM MINIMUM WAI	PMENT IS NOT ADEQUATE TO COLD SOAK AND PRIOR TO LL TEMPERATURES WITHOUT	TO MEET THE REQUIREMENT OF A 12 HOUR RECOVERY PERIOD F DEFINITION OF ATTITUDE		
		NR SIGN	ATURE		
NASA TEAM CAPTAIN RECOM	MENDATION				
	1	•			
	•	* .			
	•				
•		SIG <u>/ J. T.</u> NASA SI	TAYLOR GNATURE		
BOARD ACTION					
NR INCLUDE CONST	IDERATION OF ABOVE IN	CURRENT THERMAL ANALYS	SIS PLAN.		
Υ.		•			
			<i></i>		
ACTIONEE		- SIGNATURE OF ROLE	D CHATRMAN		
NR	APPROVE	Den Don	- OIRTIGHI		
DUE DATE 11-22-72	DISAPPRO	WED 12 17. Col	onna 177		
	and the second s				

TYPE OF REVIEW: PDR			NUMBER 20-5
VEHICLE DM	REVIEW ITEM	DISPOSITION	DATE
INITIATOR ORGANI	ZATION SY	STEM	TEAM NAME
A. JOSLYN	MSC	DOCKING	THERMAL
DISCREPANCY PROBLEM TITLE			
	DOCKING SYSTEM TH	ERMAL PROTECTION	
IT IS INDICATED THAT COMPONENT LIMITS. REF. RID 12-6	S AT THE DOCKING S	SYSTEM ARE EXCEED	ING TERMPERATURE
	· · · ·		
JUSTIFICATION			
INSUFFICIENT THERMAL PROTECTION	N IS BEING PROVID	ED FOR DOCKING SY	STEM.
	: :		da e e e e e e e e e e e e e e e e e e e
RECOMMENDATION			
IT IS RECOMMENDED THAT NR EVAL ATTENUATOR COULD BE IMPROVED B 0.10 (ABSORPTANCE TO EMITTANCE	UATE AN ENCLOSURE, Y ELIMINATING THE RATIO OF 1.0).	SHROUD CONCEPT O	R ADDITION OF HEATERS. THE G A AURFACE EMITTANCE OF
			2
CONTRACTOR'S COMMENT			
AN ENCLOSURE/SHROUD COULD PRESS HEAT SHEETS. ITIS STILL CONSI PART-BY-BASIS. SOME RELIEF FO THE COMPONENT TEMPERATURE LIMIT	ENT MANY PROBLEMS DERED BETTER TO WO R THIS PROBLEM MAN TS.	IN IMPLEMENTATION ORK THE DS COMPON BE OBTAINED THR	N DUE TO MOVING PARTS AND ENT THERMAL DESIGN ON A U FURTHER EVALUATION OF
		:	
an a		NR SI	GNATURE
NASA TEAM CAPTAIN RECOMMENDATI	ON		
11			<b>,</b>
	•		
•		NASA	SIGNATURE
BOARD ACTION			Y L
NR & NASA REVIEW SUBJECT AFTER	MOVE INFO IS AVA	ILABLE ON 11-17-7	2.
			4 s.
ACT'TONEE IN AN A	APPROVED	SIGNATURE OF BO	OARD CHAIRMAN
NR/NASA	W ALLOUND	1	1

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		· · · · · · · · · · · · · · · · · · ·	What is the se
YPE OF REVIEW: PDR	DEVITEN TREN DIGDOG	NUMBER	20-6
EHICLE DM	REVIEW TIEM DISPOSI	DATE	and - an an and a series and a series of a
NITIATOR ORGANIZAT	ION SYSTEM	TEAM NAME	and the second
J. T. TAYLOR	THERMA		SRMAL
ISCREPANCY PROBLEM	DM INSULATION DES	IGN	•••
INSULATION DESIGN CONFIGURATION N	NOT ADEQUATELY DEFINED	FOR REVIEW.	tur" • 12 14
n an	· · · · ·	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
USTIFICATION			19
INSULATION DESIGN IS STILL IN THE	CONCEPT STAGE AND CAN	NOT BE APPROVED.	
		· · · ·	
قفى المراجع المراجع ا	and the second		1 Martin <mark>a</mark>
ECOMMENDATION	·····		
A PDR SHOULD BE SCHEDULED TO REV	IEW NR'S PRELIMINARY DE	SIGN.	
í ,		×	
CONTRACTOR'S COMMENT			
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR.	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
ONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIG DM CDR.	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR.	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR.	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
ONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. MASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. NASA TEAM CAPTAIN RECOMMENDATION NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. NASA TEAM CAPTAIN RECOMMENDATION i NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72.	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. VASA TEAM CAPTAIN RECOMMENDATION NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72. DN 11/10/72. RID CLOSED	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. VASA TEAM CAPTAIN RECOMMENDATION in SUBJECT TO BE PRESENTED TO NASA O	N CONCEPT ON 11/10/72. DN 11/10/72. RID CLOSED	FINAL DESIGN WILL BE PRE	SENTED AT THE
CONTRACTOR'S COMMENT NR WILL PRESENT INSULATION DESIGN DM CDR. NASA TEAM CAPTAIN RECOMMENDATION NASA TEAM CAPTAIN RECOMMENDATION	N CONCEPT ON 11/10/72. DN 11/10/72. RID CLOSED	FINAL DESIGN WILL BE PRE	SENTED AT THE

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TYPE OF REVIEW:	an a a marina a dua a		NUMBER 20-7
VEHICLE	REVIE	W ITEM DISPOSITION	DATE 11.0.72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
A. JOSLYN	MSC		THERMAL
DISCREPANCY PROBLEM	TITLE	•	
•	DEFINITIO	N OF DM ELECTRICAL HEA	T LOADS
DM SPEC. SD72-CS-0055 THERMAL DESIGN.	HAS TBD FOR FIGURE	6 WHICH SPECIFIES DM E	QUIPMENT DUTY CYCLE FOR
	-		
JUSTIFICATION	and the first of the block of the second sectors of the second sectors of the second sectors of the second s		
ELECTRICAL EQUIPMENT M	AXIMUM AND MINIMUM	DUTY CYCLE DEFINITION	REQUIRED FOR THERMAL DESIGN
or mil bit.	a 2 <b>.</b>		
	et an		
RECOMMENDATION			
INCORPORATE ATTACHED C	CHART IN FIGURE 6 OF	SD72-CS-0055.	nte productive de la constant de la
i i i i i i i i i i i i i i i i i i i			이번에 있는 것이 가지 않는 것은 가지 않는 것이 있다. 가지 않는 것은 것이 있다. 같은 것이 있는 것이 같은 것이 있는 것이 있는 것이 있는 것이 있는 것이 없다. 것이 있는 것이 같은 것이 없는 것이 없는 것이 없다. 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 있 같은 것이 있는 것이 같은 것이 없는 것이 있는 것이 없는 것이 있는 것이 없는 것이 않는 것이 없는 것이 않
		· · ·	1
CONTRACTOR'S COMMENT			
CONTRACTOR'S COMMENT	CONCUR		
CONTRACTOR'S COMMENT	CONCUR		
CONTRACTOR'S COMMENT	CONCUR	s+c / p	
CONTRACTOR'S COMMENT	CONCUR	SIG/ P.	C. MERHOFF
CONTRACTOR'S COMMENT	CONCUR	SÍG/ P. NR SI	Ć. MERHOFF GNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION	SIG/ P. NR SI	Ć. MERHOFF GNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION	SIG/ P. NR SI	Ć. MERHOFF GNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION	SIG/ P. NR SI	Ć. MERHOFF GNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION	SIG/ P. <u>NR SI</u> SIG/ J.	C. MERHOFF GNATURE T. TAYLOR
CONTRACTOR'S COMMENT	CONCUR MENDATION	SIG/ P. NR SI SIG/ J. NASA	Ć. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT NASA TEAM CAPTAIN RECOM	CONCUR MENDATION	SIG/ P. NR SI SIG/ J. NASA	Ć. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT NASA TEAM CAPTAIN RECOM BOARD ACTION	CONCUR MENDATION al ADD F	SIG/ P. NR SI SIG/ J. NASA	Ć. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION a ADD F	SIG/ P. NR SI SIG/ J. NASA	C. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT NASA TEAM CAPTAIN RECOM BOARD ACTION	CONCUR MENDATION al ADD F	SIG/ P. NR SI SIG/ J. NASA	Ć. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT	CONCUR MENDATION a ADD F	SIG/ P. NR SI SIG/ J. NASA	C. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT NASA TEAM CAPTAIN RECON BOARD ACTION	CONCUR MENDATION al ADD F	SIG/ P. NR SI SIG/ J. NASA IGURE TO SPEC	C. MERHOFF GNATURE T. TAYLOR SIGNATURE
CONTRACTOR'S COMMENT NASA TEAM CAPTAIN RECOM BOARD ACTION ACTIONEE NR	CONCUR MENDATION at ADD F	SIG/ P. NR SI SIG/ J. SIG/ J. NASA TIGURE TO SPEC OVED SIGNATURE OF BC	C. MERHOFF GNATURE T. TAYLOR SIGNATURE

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# DOCKING MODULE THERMAL ANALYSIS POWER PROFILE

ATTACHMENT RID 20-7

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	DOCKING,				-	-	DOC	к 		TYP - FI	ICA RST	TR	VA(	CAN	T	PR		LE				
	WATTS	D	PRE	E D	F	RE	R	0	CCI	JP.	CR	NEW OY	UZ	0	ссі	JP.	VA	CA	NT	01	CCI	JP.
		н	N	С	н	N	С	н	N	С	н	N	С	н	N	С	н	N	С	н	N	С
BUS A								· ·														-
* TRANSCEIVER	40/8	x	X	х	X	х	х	x	х	X	x	х	x	x	х	х	x	x	х	X	x	x
INSTRUMENT.	19.3	x	X	х	X	х	х	x	х	х	X	х	х	X	х	х	X	х	х	X	x	X
PRI. FLOODS	26.1							X			X			X						X		
CABIN FAN	16.2							X	Х	x	X	Х	х	X	Х	Х	×			X	х	Х
BUS B			1											-								
SEC FLOODS	26.1	X			X			x	Х	X	x	х	х	X	Х	х	x	х		x	х	х
INSTRUMENT.	13.2	X			X			X	Х	х	X	Х	х	X	х	х	x	х		X	x	х
SPEAKERS	7.0							X	Х		۰X	Х		X	Х		X	х		X	х	
** T.V.	23.0							X						X						X		
C&W	8.0							X	X	X	X	X	х	X	X	х	X	x		X	X	X

DUTY CYCLE, %

* XCVR, HOT	30/70	-				
* XCVR, COLD	30/70	30/70	30/70	5/95	30770	5/95 -
TELEVISION	50	4				

(H = HOT / N = NOMINAL / C = COLD)



TYPE OF REVIEW: CDR				NUMBER 20-8
VEHICLE CSM 111		REVIEW	ITEM DISPOSITION	DATE 11-9-72
INITIATOR	ORGANI	ZATION	SYSTEM	TEAM NAME
J. T. TAYLOR	1	1SC	SPS	THERMAL
DISCREPANCY PROBLEM	TITLE	SPS HELIUM I	LINES TEMPERATURE LIMI	TS
ANALYSIS SHOWS HELIUM I HAS AGREED THAT THIS IS FORE, SKYLAB HEATERS WI	LINES WI 5 NOT A ERE NOT	THIN 5 DEG. OF HARD LIMIT FOF REQUIRED.	F ALLOWABLE LIMIT FOR 1 R FIRING THE ENGINE FO	FIRING ENGINE. HOWEVER, NR R THE ASTP MISSION AND THERE-
	<b>The Constantine of Street Constantine</b>		• -	
JUSTIFICATION				
NR HAS NOT PROVIDED THE EXCEED THE LIMITS PRIOR	E RATION R TO AN	VALE FOR RELAXI SPS FIRING. 1	ING THESE LIMITS AND AN IF THESE ARE NOT LIMITS	LLOWING THE TEMPERATURE TO S THEY SHOULD BE DELETED.
2 20				
RECOMMENDATION				
CONTRACTOR'S COMMENT WC ABOVE LOWER LIMITS. MC PROCEDURES IN THE ASTP OF THE HELIUM LINES ANI CONTINUOUS FIRING CAPAR	ALLOWS ALLOWS CONDIT ORST COI DNITORIN OPERATI D LOSS ( BILITY.	D-CASE ANALYSI G OF THE TEMPE NG HANDBOOK WI F HELIUM SUPPI IT IS NOT PLA	S SHOWS THE SUBJECT HI RATURES OF THESE LINES LL PROVIDE FOR THE CON Y PRESSURE TO PROPELLA NNED TO PUT LIMITS FOR SIG/ P. C. N NR SIGN	ELIUM LINES TO BE 5 DEG. F S IS NOT REQUIRED. MALFUNCTION VTINGENCY CASE OF FREEZING ANT TANKS, AND STILL MAINTAIN R THESE LINES IN THE ASTP ODB.
NASA TEAM CAPTAIN RECOM	MENDATI	ON		
AGREE IF <u>NO</u> LIMITS ARE:	SHOWN I	N ASTO SODB.	•	· · · ·
- 		•	9.5 2.1.5	
			SIG/ <u>J.T.T</u> NASA SI	CAYLOR GNATURE
BOARD ACTION				
NR PROVIDE NEW LI	MITS AN	D SUPPORTING R	ATIONALE PER EARLIER 1	TELECON DIRECTION.
ACTIONEE NR DUE DATE 11-17-72		APPROVE	$\frac{1}{R} \begin{bmatrix} \text{SIGNATURE OF BOAF} \\ R & A \end{bmatrix} \begin{bmatrix} R & A \end{bmatrix}$	RD CHAIRMAN louis 182

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		•	and the second second	
TYPE OF REVIEW: CDB	R BEVIEW	TTEM DISPOSITION	NUMBER	20-9
VEHICLE CSM 111		TIM DISTOSTION	DATE	
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME	
A. JOSLYN	MSC	V		THERMAL
DISCREPANCY PROBLEM	TITLE MAXIMUM H	RCS BURN PROFILE DEFI	INITION.	•
DEFINITION AT MAXIMUM RO	CS DUTY CYCLE PROFILI	E WAS INADVERTENTLY (	MITTED FROM TH	ERMAL
DESIGN MISSION IN SD64-	1344.			
		-		1
JUSTIFICATION RCS DUTY CYCLE DEFINITION	ON TS REQUIRED TO AS	SURE THERMAL DESTON	OMPATTRILITY W	TTH
PLUME HEATING.		· ·		
		1		
RECOMMENDATION				
INCORPORATE MAX. RCS EN	GINE FIRING TIME AND	DUTY CYCLE IN THERMA	AL DESIGN MISSI	ON DEFINED IN
SD 64-1344.	,			
CONTRACTION IS COLOTING				
CONTRACTOR'S COMMENT				1 1 1 1 N
CONCUR -				
	•	• • •		
		ï		
n in		NR S	IGNATURE	
NASA TEAM CAPTAIN RECOM	MENDATION			
	1		• •	
		-		
411 - 20 MM				
		NASA	SIGNATURE	
BOARD ACTION		· · · · · ·		
ADD RCS DUTY CYCLE TO S	D64-1344 & IED 40006	. PRELIMINARY DATA H	REQUIRED	
BY 11-20-72 TO SUPPORT	USSR TRIP.			
		2. 		
	27 24	-		( ) · · · · · · · · · · · · · · · · · ·
ACTIONEE	APPROV	ED SIGNATURE OF B	BOARD CHAIRMAN	· · · · · ·
DUE DATE 12-15-72	ÖDISAPPR	ROVED R.A.C.	oloning	183

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TYPE OF REVIEW: PDR			NUMBER 21-1
VEHICLE DOCKING MODUL	REVIEW :	ITEM DISPOSITION	DATE 11_0_72
INITIATOR	ORGANIZATION	SYSTEM	TEAM NAME
D. HUGHES	CSD	INSTRUMENTATION	INSTRUMENTATION
DISCREPANCY PROBLEM	TITLE O2 PP MEASUR	REMENT SYSTEM RESPONSE	TIMES
PROCUREMENT SPEC MC449 TO A 80% step change i	-0135 RESPONSE TIME R n O <sub>2</sub> PARTIAL PRESSURE	REQUIREMENT IS LESS THA	AN 10 SECONDS FOR 63% RESPONSE 3
		· _	
JUSTIFICATION			
THE RESPONSE TIME FOR POSSIBILITY EXISTS THA	95% RESPONSE TIME MAY T AN UNINHABITABLE EN	BE SIGNIFICANT, I.E.,	, 5 TO 10 MINUTES. LOW O <sub>2</sub> PARTIAL PRESSURE).
RECOMMENDATION			
1. DETERMINE RESPONSE	TIME OF 95% RESPONSE		
2. INTEGRATE THIS TIM	E INTO CREW TIMÈLINE.		· · · · · · · · · · · · · · · · · · ·
CONTRACTOR'S COMMENT			
MEASUREMENT 95% RESPON SPECIFICATION.	SE RATE WILL BE DETER	MINED AND THIS VALUE A SIG/ <u>C.ZH</u> NR SIGN	ADDED TO THE PROCUREMENT
NASA TEAM CAPTAIN RECOM	MENDATION		
NR WILL DETERMINE RESP	ONSE TIME TO 95% AND	INCORPORATE IN SPECIFI	CATION.
		SIG/ FRANK	C A. ROTRAMEL
		SIG/ FRANK NASA SIG	GNATURE
BOARD ACTION	PER CONTRACTOR'S C O	SIG/ FRANK NASA SI	C A. ROTRAMEL

TYPE OF REVIEW: CBR/PD	R		DICDOCTOTON	NUMBER	21-2	
VEHICLE CSM 111 &DM		REVIEW ITEM	DISPOSITION	DATE	11-9-72	1.2
INITIATOR	ORGANIZATION	SYS	STEM	TEAM NAME		
F. M. ROTRAMEL	MSC/EB8	IN	STRUMENTATION	INSTRUM	IENTATION	
DISCREPANCY PROBLEM	TITLE	•	£			
•	C	CHANGES TO B.	ASPLINE MEASUREMEN	T LIST		
THE BASELINE MEASUREM PRESENT MISSION OPERA	ENT REQUIREMEN TIONAL REQUIRE	NTS LIST'AS D EMENTS.	PRESENTLY WRITTEN	IS NOT IN AC	CCORDANCE WI	TH
		·** · · ·		· · ·		
JUSTIFICATION						
	•		· · · ·			
BASELINE SHOULD BE CO	NFIGURED TO PR	RESENT REQUI	REMENTS AT THIS CD	R.		·
	·*"	1				
RECOMMENDATION					7-3 -	
ACTION NR: CHANGE ME	ASUREMENT REQU	JIREMENTS LI	ST TO INCORPORATE	THE CHANGES	ON THE ATTA	CHED
č LIST.	•					
ACTION NASA: ACCEPT	MODIFIED MEASU	JREMENT REQU	IREMENTS LIST AS A	STP BASELINE	E AT THIS CD	DR.
				1		
CONTRACTOR'S COMMENT						
THIS REQT. IMPLEMENTA	TION IS A CHAN	NGE TO ASTP	BASELINE. IMPLEME	NTATION REQU	JIRES WIRING	 }
RELOCATION IN CSM 111	, WIRING DESIG	GN CHANGE, M	EAS. LIST AND EQUI	PMENT LIST (	CHANGES.	
			SIG <u>C</u>	ZEMENICK		
NASA TEAM CAPTAIN RECON	MENDATION					
			)			
BASELINE TO BE	CHANGED TO INC	CORPORATE TH	E ATTACHED CHANGES	•		
			SIG/FRANK	A. ROTRAMEI		
*			NASA S	IGNATURE		
BOARD ACTION Implementat	ion to be	accompti.	skeel after 1	NASA Con	konstren	st
attached list -	NASA a	action A	? word to 1	s ve v c'de	confern	intim.
to NR by 11-	10-72		· :			
REF. RID 20-2					<i>i</i> .	
ACTIONEE NR ± NA 5	A R	APPROVED	SIGNATURE OF BOA	RD CHAIRMAN		
DUE DATE 11-10-7	20	DISAPPROVED	gen-	5. Cm		10,00
						107

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# ATTACHMENT

RID 21-2

#### CHANGES TO THE CSM 111 ASTP BASELINE MEASUREMENT LIST - 11.9.1972

		DE	LETE	FROM	LBR			s/s		ADD TO LBR	s/s
SC0041T	Temp	02	Tank	1				1	DF9603T	Temp No 2 DM Cabin Inner Wall	1
SC0042T	Temp	02	Tank	2				1	DF9615P	Press DM Cabin 02 Partial Sys A	1 *
SC0043T	Temp	H2	Tank	1				1	DF9616P	Press DM Cabin 02 Partial Sys B	1 *
SC0044T	Temp	H2	Tank	2				1	DF9632Q	Quantity DM <b>9</b> 2 Tank 1 Sys A	10
CF0008T	Temp	Sut	t Sup	oply :	Manif			1	DF9652Q	Quantity DM N2 Tank 1 Sys A	1 *
SF0262 T	Tem	p Se	conda	ary R	adiat	or Inle	E :	1	DS9630T	Temp No 1 Docking System	1
SF0263T	Temp	Sec	onda	ry Ra	diato	r Outle	t	1	D <b>S9631</b> T	Temp No 2 Docking System	1
CF0460T	Temp	Urin	e Dur	np No	zzle			1	DS9632T	Temp No 3 Docking System	1
									CT9601W	Time Remaining Video Recorder	1

#### OTHER CHANGES

DF9615P	Press DM Cabin 02 Partial Sys A	Add L*D (C&W in DM)
DF9616P	Press DM Cabin 02 Partial Sys B	Add L*D (C&W in DM) and SM A (Added to CM System Meter)
DF9651Q	Quantity DM 02/N2 Tank 1	Change to Quantity DM N2 Tank 1 Sys B
DF9652Q	Quantity CM/DM 02/N2 Tank 1 Sys A	Change to Quantity DM N2 Tank 1 Sys A
DF9656Q	Quantity DM 02/N2 Tank 2	Change to Quantity DM N2 Tank 2 Sys B
DF9657Q	Quantity CM/DM 02/N2 Tank 2	Change to Quantity DM N2 Tank 2 Sys A
DF9660X	DM 02/N2 Flow High	Delete
DF9625T	Temp DM Cool Loop Sublimator Out	Delete

CG-1110 V 2.5V TM Bias CF0005P CO2 Partial Press CF0035F 02 Flow CF0012P Suit Pressure

\* Reduce from 10 s/s to 1 s/s

# ENCLOSURE E

# DOCKING SYSTEM

• INDICATION REQUIREMENTS & MECHANIZATION (BASELINE)

ALTERNATE SWITCH SYSTEM OPTIONS

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# CAPTURE INDICATION



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## STRUCTURAL LATCH ACTIVE HOOK INDICATION







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BASIS FOR SWITCH SYSTEM SIMPLIFICATION

Second Second Second Second

# 1. TOTAL SWITCH SYSTEM REDUNDANCY MAY NOT BE REQUIRED ON SEQUENCES NOT AFFECTING SAFETY

2. DECOUPLING SWITCH MECHANISMS FROM PRIMARY DOCKING SYSTEM FUNCTIONS MAY INCREASE DOCKING RELIABILITY

BASELINE STRUCTURAL HOOK INDICATION DOES NOT VERIFY

• USA ACTIVE HOOKS ENGAGED WITH USSR PASSIVE HOOKS

• USA PASSIVE HOOKS ENGAGED WITH USSR ACTIVE HOOKS



3.

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# LOAD CELL/STRAIN GAGE STUDY











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# SYSTEM BLOCK DIAGRAM "A" ONLY

ALTERNATE SWITCH SYSTEM

S S	pace Division		112AP116 <b>522</b>
	<ul> <li>BODY LATCHES OUT &amp; LOCKED</li> <li>PASSIVE HOOK RESET</li> </ul>	6 (SEE ABOVE) 2 (SEE ABOVE)	-
4	. DELETE EXERCISE OF BACK-UP RELEASE MODES FROM IED 40000. NO REQUIREMENT FOR VERIFICA- TION OF		•
3	<ul> <li>"A" SYSTEM ONLY ON</li> <li>GUIDE RING CAPTURE</li> <li>GUIDE RING RETRACT</li> <li>STRUCTURAL INTERFACES MATED</li> <li>BODY LATCHES OUT AND LOCKED</li> <li>GUIDE RING EXTEND</li> </ul>	3 3 3 3 3-	
2	<ul> <li>READ GEARBOX MOTOR</li> <li>TRANSFER SWITCHES FOR         <ul> <li>ACTIVE HOOK OPEN</li> <li>PASSIVE HOOK RESET</li> </ul> </li> </ul>	2 2	-
l	. LOAD CELLS TO INDICATE ACTIVE HOOKS CLOSED	8 SWITCHES	8 OR 16 LOAD CELLS
- C	) PTIONS	DELETES	ADDS

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