JSC 14016
Annex 5

MAY 1 1979

Payload Operations Control Center

(NASA-TM-80435) PAYLOAD OPERATIONS CONTROL CENTER. OFFICE OF SPACE SCIENCE PAYLOAD (OSS-1), PRELIMINARY (NASA) 45 p

N79-76883

Unclas
00/16 20836

Office of Space Science Payload (OSS-1)

Preliminary

March 7, 1979

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

REVISIONS

REV LTR	CHANGE NO.	DESCRIPTION	DATE

LIST OF EFFECTIVE PAGES

The current status of all pages in this document is as shown below:

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JSC - 14016
Annex 5

PAYLOAD OPERATIONS CONTROL CENTERS

OFFICE OF SPACE SCIENCE PAYLOAD (OSS-1)

PRELIMINARY

APPROVED BY:

Payload Representative

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Annex Book Manager

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Lyndon B. Johnson Space Center
Houston, Texas

March 7, 1979

Preface

This document contains the basic payload data for the MCC configuration on the OSS-1 payload. This document is issued as an annex to the Payload Integration Plan (PIP), JSC-14016.

All data presented in this annex has been supplied and verified by the payload user and his staff. Corrections and updates will be made as scheduled via the PIP.

Comments and/or corrections to these data should be directed to M. Hagan, CH6, NASA-JSC-713-483-5163 or to K. Kissin Code 420, NASA GSFC - 87-344-5596.

OSS-1 POCC ANNEX

CONTENTS

1. Data Pack Contents

2. General Data Pack Notes

3. Console Pictures

4. Configuration Detail Notes

5. Event Data Formats

5-1. Event Data Graphics
5-2. Event Format Initialization Summary
5-3. Event Format Callup List
5-4. Event Format Detail List

6. Console Display/Control Data

6-1. Console Initialization
6-2. Console Detail

7. DTE Formats Data

7-1. MSK Callup List
7-2 DRK Standard Fields

8. Event/Analog Recorder Data

8-1. Console Recorder Callup List
8-2. AES Pen Group/MSK Callup List
8-3. AES Format Detail Summary
8-4 AES Pen Groups/Downlink Combo vs. User D/P

9. Group Display Data

9-1 Group Display Pictures
9-2 Group Display Detail

10. TBD

11. Limit Sense Data

11-1. Limit Sense Detail

12. Miscellaneous Non-Console Display/Control Devices

13. Level A, B & C Requirements

13-1. SR - 405 Display Requirement
13-2. SR - 406 Ground Handling of Payload Recorder Data
13-3. SR - 407 Payload Command Requirements

14. User Supplied Ground Support Equipment

DATA PACK

CONTENTS

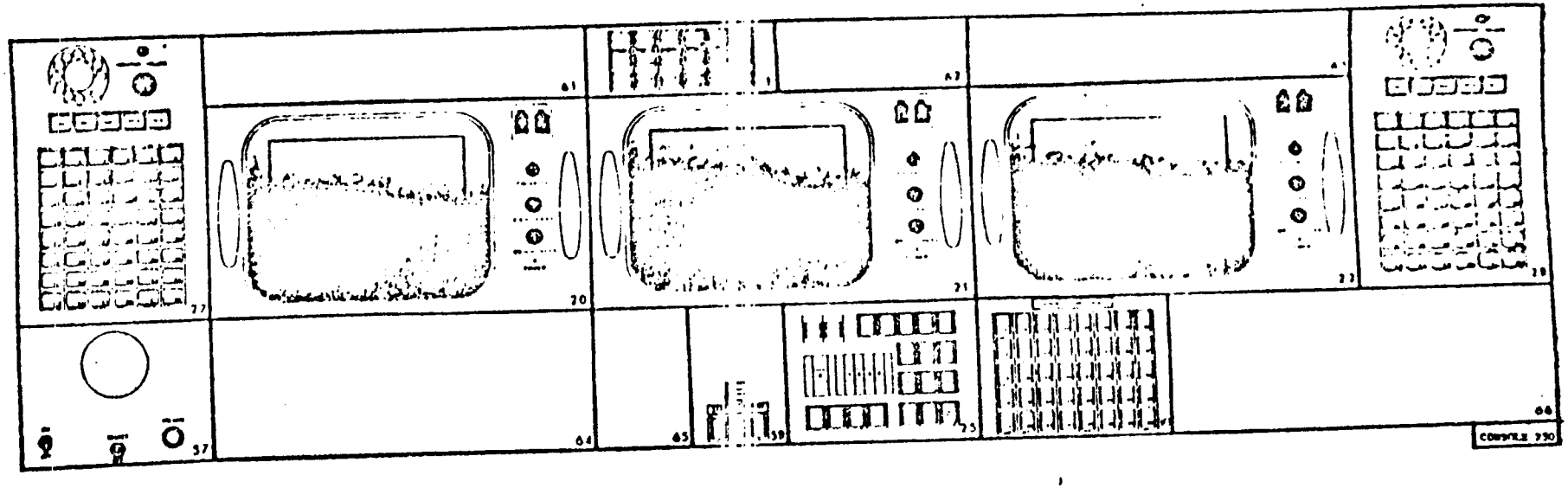
The ~~Table of Contents,~~ console pictures and the blank forms are being supplied in the preliminary version of this document. The data requirements will be supplied in accordance with the MCC configuration schedule.

GENERAL DATA PACK NOTES

1/27/79

LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E	
20	TV MONITOR 14 PRECISION	M9	
21	TV MONITOR 14 PRECISION	M9	
22	TV MONITOR 14 PRECISION	M9	
25	MANUAL SELECT KEYBOARD	MSK3	
27	VOICE COMM POSITION-2260	V48	
28	VOICE COMM POSITION-2261	V48	
30	SUMMARY MSG ENABLE KBRD	SMEK2	

LOC	DESCRIPTION	TYPE	NOTE
57	VOICE COMM SPEAKER	SPK1	
58	STATUS REPORTING	4CE1	
61	BLANK PANEL	D11/8	
62	BLANK PANEL	D11/6	
63	BLANK PANEL	D11/8	
64	BLANK PANEL	D11/16	
65	BLANK PANEL	D11/13	
66	BLANK PANEL	D11/16	

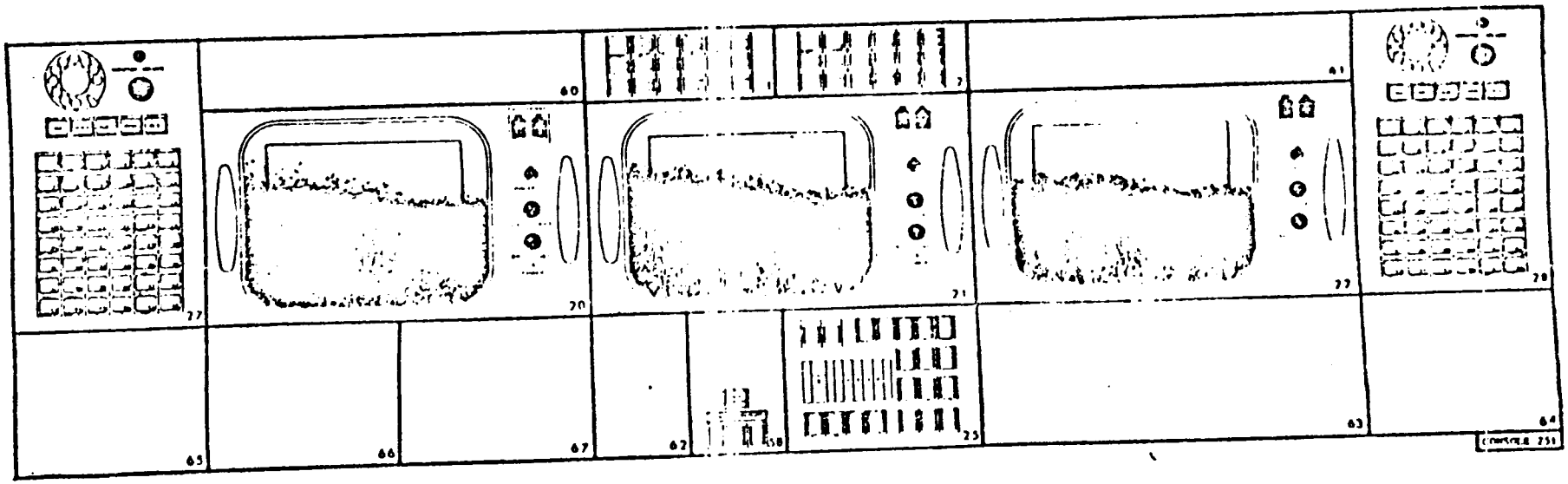


PANELOAD 1
CONSOLE NO. 250
ROOM NO. 213

LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E	
02	EVENT INDICATOR	36E	
20	TV MONITOR 14 PRECISION	M9	
21	TV MONITOR 14 PRECISION	M9	
22	TV MONITOR 14 PRECISION	M9	
25	MANUAL SELECT KEYBOARD	MSK3	
27	VOICE COMM POSITION-2262	V48---	
28	VOICE COMM POSITION-2263	V48---	

LOC	DESCRIPTION	TYPE	NOTE
58	STATUS REPORT	4CE2	
60	BLANK PANEL	D11/8	
61	BLANK PANEL	D11/8	
62	BLANK PANEL	D11/13	
63	BLANK PANEL	D11/16	
64	BLANK PANEL	D11/14	
65	BLANK PANEL	D11/14	
66	BLANK PANEL	D11/14	
67	BLANK PANEL	D11/14	

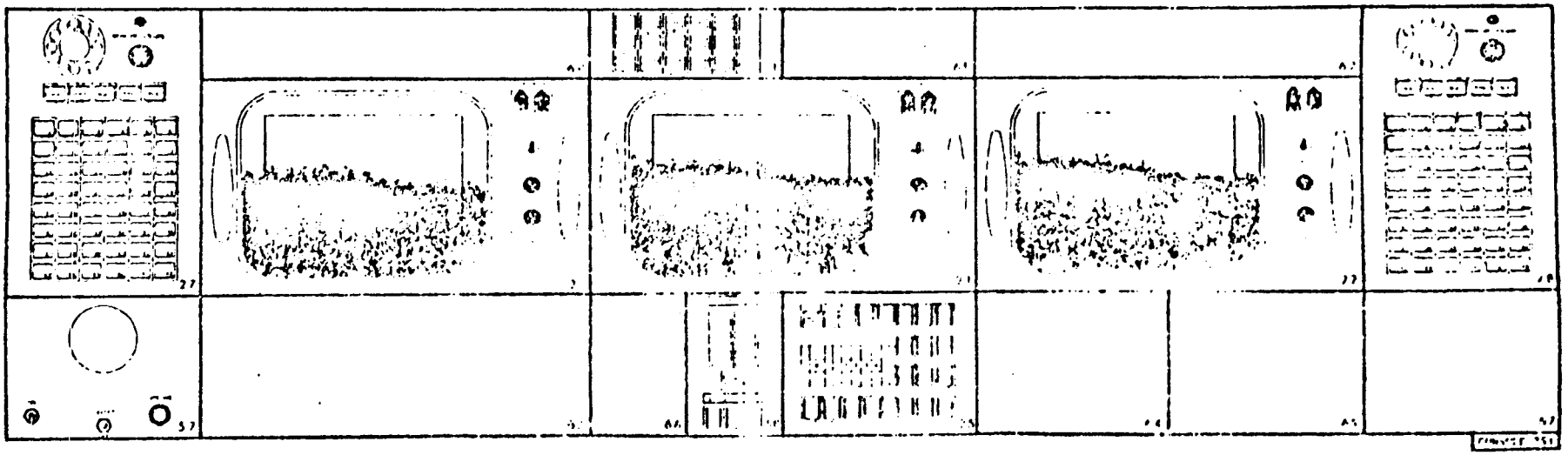
3-2



PAYLOAD 2
CONSOLE NO. 251
ROOM NO. 213

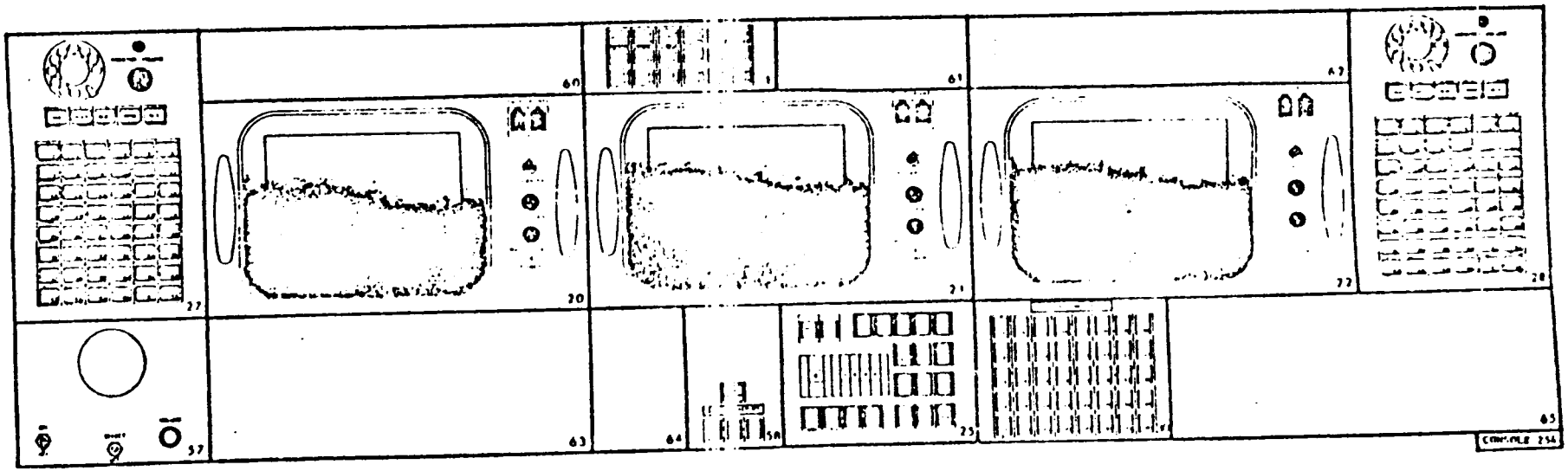
LOC	DESCRIPTION	TYPE	NOTE
1	EVENT INDICATOR	36E	
0	TV MONITOR 14 PRECISION	M9	
1	TV MONITOR 14 PRECISION	M9	
2	TV MONITOR 14 PRECISION	M9	
5	MANUAL SELECT KEYBOARD	MSK3	
7	VOICE COMM POSITION-2266	V48	
8	VOICE COMM POSITION-2267	V48	
7	VOICE COMM SPEAKER	SPK1	

LOC	DESCRIPTION	TYPE	NOTE
58	STATUS/STATUS REPORT	10EC2	
60	BLANK PANEL	D11/8	
61	BLANK PANEL	D11/6	
62	BLANK PANEL	D11/8	
63	BLANK PANEL	D11/16	
64	BLANK PANEL	D11/14	
65	BLANK PANEL	D11/14	
66	BLANK PANEL	D11/30	
67	BLANK PANEL	D11/14	



PAYLOAD 4
CONSOLE NO. 253
ROOM NO. 213

LOC	DESCRIPTION	TYPE	NOTE	LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E		57	VOICE COMM SPEAKER	SPR1	
20	TV MONITOR 14 PRECISION	M9		58	STATUS REPORT	4CE2	
21	TV MONITOR 14 PRECISION	M9		60	BLANK PANEL	D11/8	
22	TV MONITOR 14 PRECISION	M9		61	BLANK PANEL	D11/6	
25	MANUAL SELECT KEYBOARD	MSK3		62	BLANK PANEL	D11/8	
27	VOICE COMM POSITION-2268	V48		63	BLANK PANEL	D11/16	
28	VOICE COMM POSITION-2269	V48		64	BLANK PANEL	D11/13	
30	SUMMARY MSG ENABLE KBRD	SMEK2		65	BLANK PANEL	D11/15	

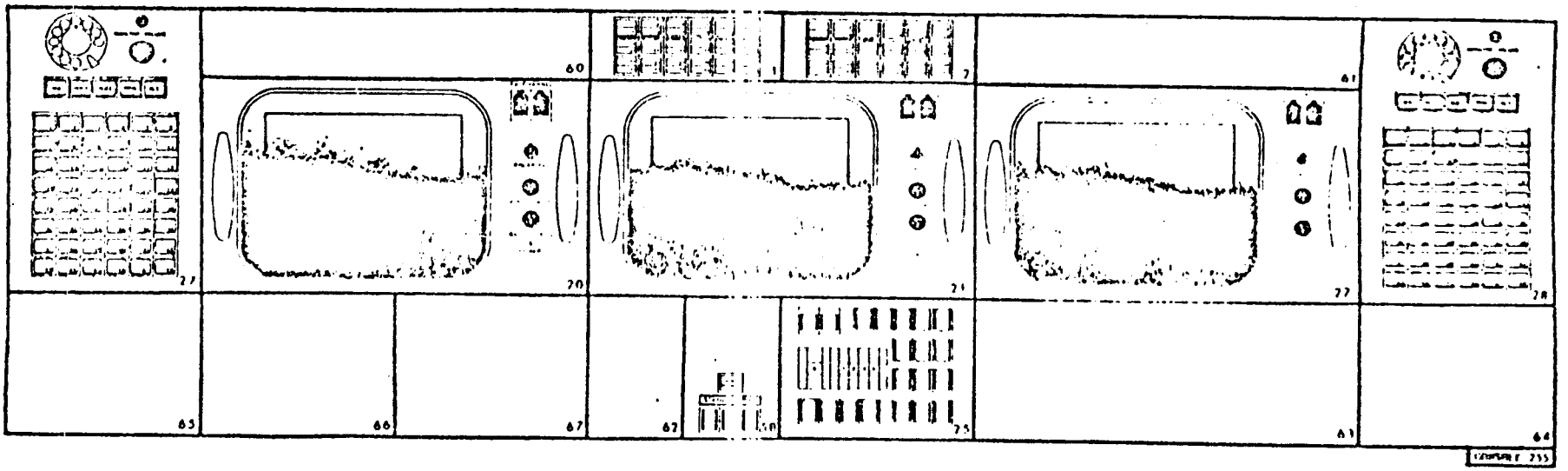


PAYLOAD 5
CONSOLE NO. 254
ROOM NO. 213

1/27/79

LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E	
02	EVENT INDICATOR	36E	
20	TV MONITOR 14 PRECISION	M9	
21	TV MONITOR 14 PRECISION	M9	
22	TV MONITOR 14 PRECISION	M9	
25	MANUAL SELECT KEYBOARD	MSK3	
27	VOICE COMM POSITION-2270	V48---	
28	VOICE COMM POSITION-2271	V48---	

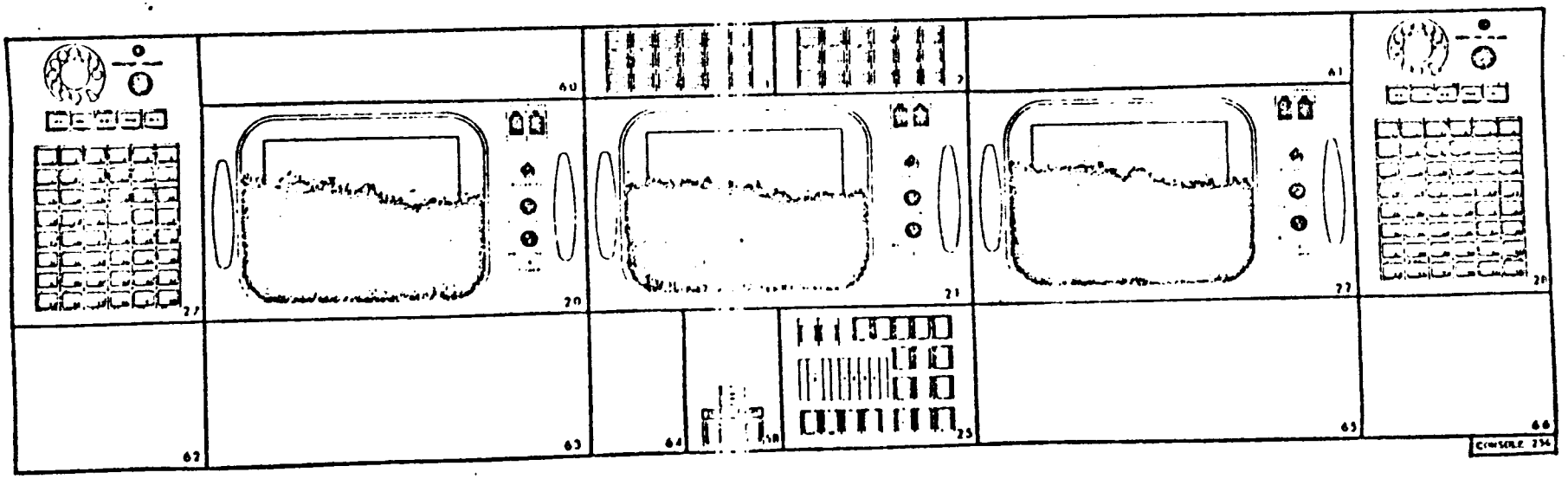
LOC	DESCRIPTION	TYPE	NOTE
58	STATUS REPORT	4CE2	
60	BLANK PANEL	D11/8	
61	BLANK PANEL	D11/8	
62	BLANK PANEL	D11/13	
63	BLANK PANEL	D11/16	
64	BLANK PANEL	D11/14	
65	BLANK PANEL	D11/14	
66	BLANK PANEL	D11/14	
67	BLANK PANEL	D11/14	



PAYLOAD 6
CONSOLE NO. 255
ROOM NO. 213

LOC	DESCRIPTION	TYPE	NOTE	LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E		58	STATUS REPORT	4CE2	
02	EVENT INDICATOR	36E		60	BLANK PANEL	D11/8	
20	TV MONITOR 14 PRECISION	M9		61	BLANK PANEL	D11/8	
21	TV MONITOR 14 PRECISION	M9		62	BLANK PANEL	D11/14	
22	TV MONITOR 14 PRECISION	M9		63	BLANK PANEL	D11/16	
25	MANUAL SELECT KEYBOARD	MSK3		64	BLANK PANEL	D11/13	
27	VOICE COMM POSITION-2272	V48		65	BLANK PANEL	D11/16	
28	VOICE COMM POSITION-2273	V48		66	BLANK PANEL	D11/14	

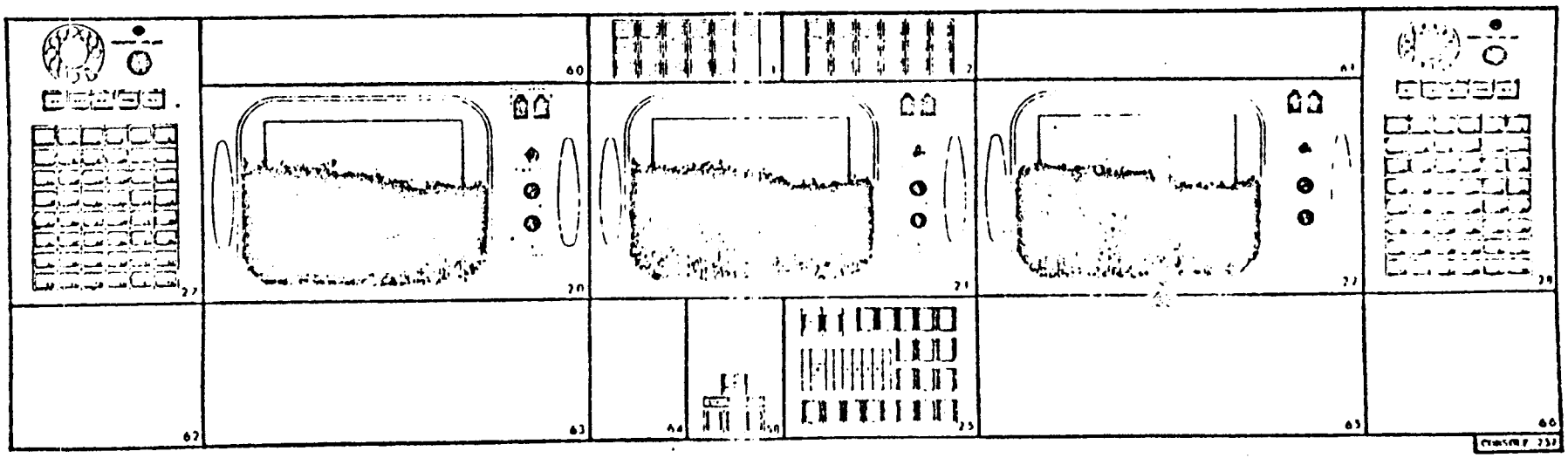
3-6



PAYLOAD 7
CONSOLE NO. 256
ROOM NO. 213

1/27/79

LOC	DESCRIPTION	TYPE	NOTE	LOC	DESCRIPTION	TYPE	NOTE
01	EVENT INDICATOR	36E		58	STATUS REPORT	4CE2	
02	EVENT INDICATOR	36E		60	BLANK PANEL	D11/8	
20	TV MONITOR 14 PRECISION	M9		61	BLANK PANEL	D11/8	
21	TV MONITOR 14 PRECISION	M9		62	BLANK PANEL	D11/14	
22	TV MONITOR 14 PRECISION	M9		63	BLANK PANEL	D11/16	
25	MANUAL SELECT KEYBOARD	MSK3		64	BLANK PANEL	D11/13	
27	VOICE COMM POSITION-2274	V48		65	BLANK PANEL	D11/16	
28	VOICE COMM POSITION-2275	V48		66	BLANK PANEL	D11/14	



PAYLOAD 8
CONSOLE NO. 257
ROOM NO. 213

CONFIGURATION DETAIL NOTES

03-25-77
MCC CONFIGURATION CONTROL

VARIABLE EVENT FORMAT DETAIL
OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

EVENT FORMAT NUMBER _____ FLIGHT _____ DATA TYPE _____

OVERLAY TYPE _____ NUMBER OF COPIES _____

OVERLAY TITLE _____

INDICATOR	COLOR	MEASUREMENT NUMBER	LOGIC	LABEL
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
[illegible]				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
[illegible]				
[illegible]				
34				
35				
36				

VARIABLE EVENT MODULE INITIALIZATION REQUIREMENT INPUT FORM EXPLANATION:

DATA PACK ACRONYM	Eg... GUIDANCE, BOOSTER, FLIGHT CONTROL, EMES,...
CONSOLE NUMBER -	Enter the Console number.
MODULE NUMBER -	Enter the module location designation number. This number will always be from '01' thru '19' for a variable event module.
FORMAT NUMBER -	Enter the format number of the 'variable event format' that is required to initialize the variable event module.
DATA TYPE -	Enter the type of data required to drive the variable event format that has been designated in the 'FORMAT NUMBER' entry. Data Types: REALTIME, SIMULATION, PLAYBACK 1, PLAYBACK 2
FLIGHT -	Enter the Flight ID required for this module upon initialization.

Note: Each Variable Event Module may be initialized to a different flight. They may be selected (via MDK) to a different flight in real-time.

03-25-77
MCC CONFIGURATION CONTROL

OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

VARIABLE EVENT MODULE INITIALIZATION REQUIREMENTS INPUT FORM

CONSOLE NUMBER	MODULE NUMBER	FORMAT NUMBER	DATA TYPE	FLIGHT NUMBER
	01			
	02			
	03			
	04			
	05			
	06			
	07			
	08			
	09			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			

VARIABLE EVENT FORMAT DETAIL INPUT FORM EXPLANATION:

DATA PACK ACRONYM - Eg... GUIDANCE, BOOSTER, FLIGHT CONTROL, EMES,...

EVENT FORMAT NUMBER - When the DDD control mode is selected (MSK), the four MSK thumbwheels will represent the event format and console-module number. The left three thumbwheels will represent the event format number.

FLIGHT - Flight ID.

DATA TYPE - REAL TIME, SIMULATION, PLAYBACK 1, PLAYBACK 2

OVERLAY TYPE - TYPE A = 36-EVENT INDICATOR OVERLAY FOR USE ON A 36-EVENT INDICATOR MODULE.

TYPE B = 36-EVENT INDICATOR OVERLAY FOR USE ON THE UPPER OR LOWER HALF OF A 72-EVENT INDICATOR MODULE.

NUMBER OF COPIES - Specify the number of copies of physical overlays required.

OVERLAY TITLE - If applicable, specify a name for this overlay.

[illegible] This number relates to the physical location (and software identifier) of each 'window/indicator' of the 36-indicator format.

36-EVENT MODULE (TYPE-A)

01	02	03	04	05	06
07	08	09	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

72-EVENT MODULE (TYPE-B)

01	02	03	04	05	06	07	08	09
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	25	27
28	29	30	31	32	33	34	35	36

COLOR - Colors available are:

RED, GREEN, AMBER, BLUE & WHITE (R,G,A,B & W)

MEASUREMENT NUMBER - Enter the valid (MCC-H computer available) measurement number required displayed.

LOGIC - Enter the display logic required:

Straight, Reverse, Critical , Latched

LABEL - Enter the label required. Labels are limited to 2 Lines/9 Characters each (Space=Character).

SUMMAY MESSAGE ENABLE KEYBOARD INPUT FORM EXPLANATION:

DATA PACK ACRONYM - Eg...GUIDANCE, BOOSTER, FLIGHT CONTROL, EMES,...

ROOM NO - Enter the room number that the console is located in.

CONSOLE NO - Enter the Console number.

CONSOLE TITLE - Enter the Console Title Eg...COMPUTER SUP

MODULE LOCATION - Enter the Module location designation number. This number will always be greater than 19 for this type of module.

MODULE NAME - Enter 'SMEK'

MODULE TYPE - Enter 'A19/A'

PBI LOC - This number relates to the physical location (and software identifier) of each PBI on this module.

01	06	11	16	21	26	31	36
02	07	12	17	22	27	32	37
03	08	13	18	23	28	33	38
04	09	14	19	24	29	34	39
05	10	15	20	25	30	35	40

CLR - Colors available are:

RED, GREEN, AMBER, BLUE & WHITE (R,G,A,B & W)

LABEL - Enter the label required . Labels are limited to 5 Lines/6 Characters each (Space=Character).

MEASUREMENT - Enter the DPB assigned SMEK measurement number.

03-25-77
MCC CONFIGURATION CONTROL

SUMMARY MESSAGE ENABLE KEYBOARD
OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

ROOM NO:
CONSOLE NO:
CONSOLE TITLE:

MODULE LOCATION:
MODULE NAME:
MODULE TYPE:

PBI LOC	CLR	LABEL	MEASUREMENT
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
[illegible]			
[illegible]			
[illegible]			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39		EXECUT	
40		CLEAR	

DTE FORMATS DATA

5-77
CONFIGURATION CONTROL

OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

CONSOLE-MODULE-THUMBWHEEL POSITION TO RECORDER FORM

CONSOLE NUMBER	MODULE NUMBER	RECORDER SELECT THUMBWHEEL POSITION	RECORDER NUMBER	RECORDER TYPE
		01		
		02		
		03		
		04		
		05		
		06		
		07		
		08		
		09		
		10		

03-25-77 OFT REQUIREMENTS INPUT FORM
MCC CONFIGURATION CONTROL DATA PACK ACRONYM _____

ANALOG EVENT SYSTEM INPUT REQUIREMENTS DEFINITION

REFERENCE: JSC-100001/REV.AA/PAGE 3-31 (MCC Shuttle Development Plan)
JSC-11028/REV.3 CH.0 (SHUTTLE Data Processing Complex Software)

THE FOLLOWING TABLE LISTS THE AES FORMAT MSK CALLUP NUMBERS vs AES PEN GROUP NUMBERS.

AES FORMAT NUMBER (MSK CALLUP NUM)	AES PEN GROUP NUMBER	PEN GROUP DESCRIPTION
000	000	FORMAT DESELECT
001	001	8-PEN GROUP
002	002	8-PEN GROUP
003	003	8-PEN GROUP
004	004	8-PEN GROUP
005	005	8-PEN GROUP
006	006	8-PEN GROUP
007	007	8-PEN GROUP
008	008	8-PEN GROUP
009	009	8-PEN GROUP
010	010	8-PEN GROUP
011	011	8-PEN GROUP
012	012	8-PEN GROUP
013	013	8-PEN GROUP
014	014	15-PEN GROUP
015	015	15-PEN GROUP
016	016	15-PEN GROUP
017	017	15-PEN GROUP
018	018	15-PEN GROUP
019	019	15-PEN GROUP
020	020	15-PEN GROUP
021	021	15-PEN GROUP
022	022	15-PEN GROUP
023	023	15-PEN GROUP
024	024	15-PEN GROUP
025	025	15-PEN GROUP
026	026	15-PEN GROUP
027	027	15-PEN GROUP
028	028	15-PEN GROUP
029	029	15-PEN GROUP
030	030	15-PEN GROUP
031	031	15-PEN GROUP
032	032	15-PEN GROUP
033	033	15-PEN GROUP
034	034	15-PEN GROUP
035	035	15-PEN GROUP
036	036	15-PEN GROUP
037	037	15-PEN GROUP
038	038	15-PEN GROUP
039	039	15-PEN GROUP

OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

AES FORMAT MSK CALLUP NUMBERS vs AES PEN GROUP NUMBERS (CONT'D)

AES FORMAT NUMBER (MSK CALLUP NUM)	AES PEN GROUP NUMBER	PEN GROUP DESCRIPTION
040	040	15-PEN GROUP
041	041	15-PEN GROUP
042	042	15-PEN GROUP
043	043	15-PEN GROUP
044	044	15-PEN GROUP
045	045	15-PEN GROUP
046	046	15-PEN GROUP
047	047	15-PEN GROUP
048	048	15-PEN GROUP
049	049	15-PEN GROUP
050	050	15-PEN GROUP
051	051	15-PEN GROUP
052	____ & ____	PEN GROUP "COUPLING"
053	____ & ____	PEN GROUP "COUPLING"
054	____ & ____	PEN GROUP "COUPLING"
055	____ & ____	PEN GROUP "COUPLING"
056	&	PEN GROUP "COUPLING"
057	____ & ____	PEN GROUP "COUPLING"
058	____ & ____	PEN GROUP "COUPLING"
059	____ & ____	PEN GROUP "COUPLING"
060	____ & ____	PEN GROUP "COUPLING"
061	____ & ____	PEN GROUP "COUPLING"
062	400 & 401 & 402 & 403	24-PEN GROUPS TO THE 100-PEN EVENT RECORDER
063	600 & 601 & 602 & 603 & 604 & 605	24-PEN GROUPS TO THE 150-PEN EVENT RECORDER
064	606 & 607 & 608 & 609 & 610 & 611	24-PEN GROUPS TO THE 150-PEN EVENT RECORDER

NOTE: THERE WILL BE A "SET" OF THESE AES PEN GROUPS FOR EACH DOWNLINK COMBINATION.

THE MAXIMUM ALLOWABLE RANGE FOR USE IN AES FORMAT (MSK CALLUP) SELECTION IS FROM 000 THRU 255 (DECIMAL). THE RANGE OF AES/MSK FORMAT NUMBERS FROM 001 THRU 068 HAVE BEEN RESERVED FOR OD LINK SELECT. ADDITIONALLY, AES/MSK FORMAT NUMBER 000 IS USED FOR AES FORMAT DESELECTION.

CONSOLE-MODULE-THUMBWHEEL POSITION TO RECORDER FORM DEFINITION:

A GIVEN RECORDER MAY HAVE ONLY "ONE" CONSOLE/MSK/THUMBWHEEL CONTROL ASSIGNMENT.

DATA PACK ACRONYM -	Eg...GUIDANCE, BOOSTER, FLIGHT CONTROL, EMES,...
CONSOLE NUMBER -	Enter the Identification number of the console that is to have the recorder selection capability specified on this form.
MODULE NUMBER -	Enter the Module location designation of the MSK that is to used for recorder selection.
RECORDER THUMBWHEEL POSITION	Identifies the Recorder Select Thumbwheel Positions.
RECORDER NUMBER -	Enter the Recorder ID.
RECORDER TYPE -	Enter the Recorder Type.

(10-PEN SCR -- 8 ANALOG/2 TIMING)
(17-PEN A/E RCDR -- 8 ANALOG/7 EVENTS/2 TIMING)
(100-PEN RS -- 96 EVENTS/4 TIMING)
(18-PEN LR -- 16 EVENTS/2 TIMING)

-78-77
C CONFIGURATION CONTROL

OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

AES FORMAT FORM FOR 8-PEN ANALOG GROUP _____

AES FORMAT NUMBER _____ / DOWNLINK COMBINATION _____
(MSK CALLUP NUMBER)

PEN NUM	MEASUREMENT NUMBER	SPECIAL PROCESSING CODE	MEASUREMENT DESCRIPTION
T1			(TIME)
01			
02			
03			
04			
05			
06			
07			
08			
T2			(TIME)

NOTE: ALL MEASUREMENTS FOR A GIVEN AES FORMAT MUST BE FROM THE SAME DATA SOURCE. (OI, GPC1, etc...)

** ALTHOUGH ' TIMES ' OTHER THAN 'SPACECRAFT TIMES' WILL BE AVAILABLE VIA THE TIME SELECT SWITCHES AT THE RECORDERS, ONLY THOSE TIMES THAT ARE IN THE "TELEMETRY" STREAM ARE TO BE ENTERED INTO AN AES PEN GROUP FORMAT.

THE FOLLOWING TIMES HAVE BEEN IDENTIFIED FOR REQUESTS VIA AES PEN GROUP FORMATS:

- o ORBITER MTU-1 GMT
- o ORBITER MTU-2 GMT
- o ORBITER MTU-1 MET
- o ORBITER MTU-2 MET
- o ORBITER PRIME GPC-GMT
- o ORBITER PRIME GPC-MET
- o IPC INTERNAL TIMER
- o PAYLOAD TIME

03-25-77
MCC CONFIGURATION CONTROL

OFT REQUIREMENTS INPUT FORM
DATA PACK ACRONYM _____

AES FORMAT FORM FOR 15-PEN ANALOG/EVENT GROUP _____

AES FORMAT NUMBER _____ / DOWNLINK COMBINATION _____
(MSK CALLUP NUMBER)

PEN NUM	MEASUREMENT NUMBER	SPECIAL PROCESSING CODE	MEASUREMENT DESCRIPTION	
T1			(TIME)	
01				(ANALOG)
02				(ANALOG)
03				(ANALOG)
04				(ANALOG)
05				(ANALOG)
06				(ANALOG)
07				(ANALOG)
[illegible]				[illegible]
01				(EVENT)
02				(EVENT)
03				(EVENT)
04				(EVENT)
05				(EVENT)
06				(EVENT)
07				(EVENT)
T2			(TIME)	

NOTE: ALL MEASUREMENTS FOR A GIVEN AES FORMAT MUST BE FROM THE SAME DATA SOURCE. (01, GPC1, etc...)

** ALTHOUGH 'TIMES' OTHER THAN 'SPACECRAFT TIMES' WILL BE AVAILABLE VIA THE TIME SELECT SWITCHES AT THE RECORDERS, ONLY THOSE TIMES THAT ARE IN THE "TELEMETRY" STREAM ARE TO BE CONVERTED INTO AN AES PEN GROUP FORMAT.

THE FOLLOWING TIMES HAVE BEEN IDENTIFIED FOR REQUESTS VIA AES PEN GROUP FORMATS:

- ORBITER MTU-1 GMT
- ORBITER MTU-1 MET
- ORBITER PRIME GPC-GMT
- TFC INTERNAL TIMER
- ORBITER MTU-2 GMT
- ORBITER MTU-2 MET
- ORBITER PRIME GPC-MET
- PAYLOAD TIME

GROUP DISPLAY DATA

TBD

LIMIT SENSE DATA INPUT FORM DEFINITION:

DATA PACK ACRONYM -	Eg... GUIDANCE, BOOSTER, FLIGHT CONTROL, EMES,...
MEASUREMENT NUMBER -	Enter the Measurement Number of the parameter that is required limit sensed. ** A given Measurement Number may be assigned to <u>one</u> and only <u>one</u> Flight Discipline Group. All Measurement Numbers that are required limit sensed must be assigned to a Flight Discipline Group.
UNITS -	Enter the Engineering Units of the parameter to be limit sensed. ACRONYM limited to 8 characters.
OPERATIONAL LIMIT LOW -	Enter the Operational Low Value. Valid with or without a decimal; May be preceded by a '-' or '+' Sign; BLANK defaults to a '+' sign.
OPERATIONAL LIMIT HIGH -	Enter the Operational High Value. Valid with or without a decimal; May be preceded by a '-' or '+' Sign; BLANK defaults to a '+' sign.
CRITICAL LIMIT LOW -	Enter the Critical Low Value. Valid with or without a decimal; May be preceded by a '-' or '+' Sign; BLANK defaults to a '+' sign. This 'value' is to be entered <u>only</u> for Set # 01 of it's Flight Discipline Group. For a given parameter that has 'critical limits' a corresponding set of operational limits must exist.
CRITICAL LIMIT HIGH -	Enter the Critical High Value. Valid with or without a decimal; May be preceded by a '-' or '+' Sign; BLANK defaults to a '+' sign. This 'value' is to be entered <u>only</u> for Set # 01 of it's Flight Discipline Group. For a given parameter that has 'critical limits' a corresponding set of operational limit must exist.
CATEGORY -	Enter the applicable Category or Categories for this measurement number. (Multiple categories may be specified for a given parameter.) The Category Numbers are from 1 thru 64. The 'category' requirements are to be entered only for Set # 01 of it's Flight Discipline Group.

LIMIT SENSE DATA INPUT FORM DEFINITION: (CONT'D)

** THERE IS ONE "CRITICAL ONLY" CATEGORY FOR EACH FLIGHT DISCIPLINE GROUP. THEY ARE AS FOLLOWS:

BOOSTER	FDG-1	CATEGORY-1
FLIGHT COMPUTERS	FDG-2	CATEGORY-2
AVIONICS	FDG-3	CATEGORY-3
EMESB1	FDG-4	CATEGORY-4
EMESB2	FDG-5	CATEGORY-5
PROPULSION	FDG-6	CATEGORY-6

FDG - Enter the Flight Discipline Group code.

FDG CODE	GROUP NAME
1	BOOSTER
2	FLIGHT COMPUTERS
3	AVIONICS
4	EMESB1
5	EMESB2
6	PROPULSION

M/S - Enter the appropriate code:

M = Mission Limit Sense Data
S = Simulation Limit Sense Data

SET # - Enter the limit sense set number within a given Flight Discipline Group (Maximum of 5 Sets are allowed).

** Within a Discipline, all parameters must have the same number of limit sets.

Eg.. If the 'Number of Sets' for FDG-1 = 3, then each Measurement Number of FDG-1 must have operation limits for each 'set of limits' within FDG-1.

01-15-77
MCC CONFIGURATION CONTROL

LIMIT SENSE DATA INPUT FORM
OFT TEST DATA BASE
DATA PACK ACRONYM _____

LIMIT SENSE TABLE INPUT FORM

MEASUREMENT NUMBER	UNITS	****OPERATIONAL LIMITS **** LOW	HIGH	****CRITICAL LIMITS ******** LOW	HIGH	CATEGORY	FDG	M/S	SET #

MISCELLANEOUS NON-CONSOLE DISPLAY/CONTROL DEVICES

SECTION 13

LEVEL A, B & C REQUIREMENTS

The Statement of Requirements (SR) in this section have been submitted for OSS-1. In addition SR's will be submitted for the original DTE displays in accordance with the MCC-configuration schedule.

SR	NO. GSR-405	REVISION
CH6-78-02	DATE JUL 11 1978	
TO: FA/Director of Data Systems and Analysis	ATTN:	
SUBJECT: Display Requirements (Level A)	REQUIRED OPERATIONAL DATE OSS-1/OFT-4	PRIORITY

General:

GSFC will supply calibration information to the appropriate person at JSC.

a. Analog Output to SCR

Background:

Current downlink capability (48 MDM analogs) does not allow adequate real-time observations of payload operations. User proposes to multiplex some of the analog inputs by switching to several different signals sequentially and feeding to a single MDM channel. Switching to different signals occurs at a rate less than or equal to once per 2 seconds.

Requirement:

A maximum of 40 analog parameters shall be displayable on the SCR. (NOTE: Some minimum number of these parameters will be multiplexed as described above.)

b. Analog Output to DTE

Requirement:

Up to forty analog parameters shall be processed for display on the DTE. (NOTE: There is no requirement to display multiplexed analog parameters on a DTE.)

c. Events Output to SCR

Background:

Current downlink capability is 41 bilevels.

Requirement:

Twenty-five event parameters shall be displayable on the SCR.

PREPARED BY: CH63/M. Hogan	APPROVED (DIVISION CHIEF): Charles S. Harlan				
	TB	DD	DD	DD	DD
CONCURRENCE (Director of Flight Operations)	George W. S. Abbey, Director of Flight Operations 7-11-78				

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d. Events Output to DTE and/or Event Module

Requirement:

Twenty-five bilevel parameters shall be processed for presentation on the DTE and/or 36-PBI event module. No special logic event processing required.

e. Digital Output (2-Subcoms, 16 Bilevels Each)

Background:

From the IUE onboard computer, submultiplexed digital data shall be provided. Data selected shall be from the 20 kb science telemetry stream. Up to 256 items could be selected for subsequent transmission to 16 MDM discrete inputs. (NOTE: Data is sampled simultaneously by the MDM at the 5-word per second acquisition rate.)

Requirement:

DTE presentation of up to 256 items maximum (16 bits each is required in the POCC). Displays will be generated from the following:

Bit 1-8: (Item Identifier) Data processing for the multiplexed bilevels will consist of converting bits 1-8 to decimal.

Bit 9-16: Data

Data processing for the multiplexed bilevels will consist of:

(1) Converting to engineering units according to predefined calibration curves if they are analogs.

(2) Displaying in binary as received if they are discrete bilevels.

The tabular DTE display of the 256 items per sub com is required as described:

TIME: XXX:XX:XX:XX (GMT)

IDENTIFICATION	DATA
XXX	000
"	"
"	"
"	"

NOTE: GMT contained in the OI link is sufficient for time tagging: time of current update is to be used.

CONCURRENCE:

K. Kissin
OSS-1 Mission Manager
GSFC, Code 420

CONCURRENCE:

Dr. John T. Cox
OSS-1 Payload Officer
JSC, Code CH63

CH6-78-03	SR	NO. GSR-406 / REVISION / DATE
TO: FS/Chief, Ground Data Systems Division	ATTN: FS4/G. D. Hector	
SUBJECT: Ground Handling of the Payload Recorder Data Dumped via the S-Band FM System (Level B/C)		REQUIRED OPERATIONAL DATE: OSS-1/OFT-4 / PRIORITY

Background:

The OSS-1 payload generates data at a 20 kbps rate. This PCM stream is convolution encoded and recorded on the Orbiter payload recorder at 40 kbs. This data will be dumped via the S-band FM system to provide in-flight quick-look information to examine sensor performance and select experiment operational modes.

Reference:

For the data stream definition, see document "GSFC 5-420-8."

Requirements:

1. Provide the capability to record, at the remote site, the payload data dumped via the S-band FM system.

2. Provide the capability to playback the payload recorded data from the site to the MCC/POCC. The desired playback is at 1:1 ratio, but it can be at a 5:1 ratio.

3. Provide the capability to route the incoming payload data stream to user supplied equipment. The data stream can be serial contiguous or burst block data.

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CONCURRENCE:

Dr. John T. Cox
OSS-1 Payload Officer
JSC, Code CH63

PREPARED BY: CH63/CL. Mason		APPROVED BY (Signature of CD): Charles S. Harlan			
Concurrence: CB		CC	CF	CG	CH
(Director of Flight Operations)					

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CH6-78-01	SR	NO. GSR-407 / REVISION
		DATE June 29, 1978
TO FS/Chief, Ground Data Systems Division	FROM FS5/Fred R. Uribe	
SUBJECT OSS-1 Payload Command Requirements		REQUIRED RESPONSE DATE OSS-1/OFT-4
		PRIORITY

Background:

The storage capability for RTC's and MRTC's, as defined in the OFT Level A documentation, is insufficient to support the OSS-1 payload operation.

Reference:

Section 10.4.3.4.1 of the OFT Level A Requirements Document.

Requirements:

1. RTC Storage - The MCC shall be capable of storing 410 Orbiter RTC's (equivalent to 100 payload IUE commands and 10 regular Orbiter payload commands).

2. MRTC Storage - The MCC shall be capable of storing 100 MRTC's. Each MRTC will contain four of the RTC's defined in the above paragraph 1.

3. RTC Modification - The capability to modify and review, in real-time, 40 of the RTC's is required. The existing capability as defined for Orbiter RTC modification is sufficient when increased by 40 RTC's.

4. Display - The standard Orbiter command menu, RTC inventory and command history displays will be sufficient for the payload displays.

Please address any questions to CH63/Mason Hagan, extension 6136.

CONCURRENCE:

K. Kissin
OSS-1 Mission Manager
GSFC, Code 420

CONCURRENCE:

Dr. John T. Cox
OSS-1 Payload Officer
JSC, Code CH63

PREPARED BY CH63/M. Hagan		APPROVED BY (Division Chief) Charles S. Harlan				
CONCURRENCE	CG X	CG X	CG	CG X	CG X	
(Director of Flight Operations)						

JSC Form 1295 (Rev Aug 76)

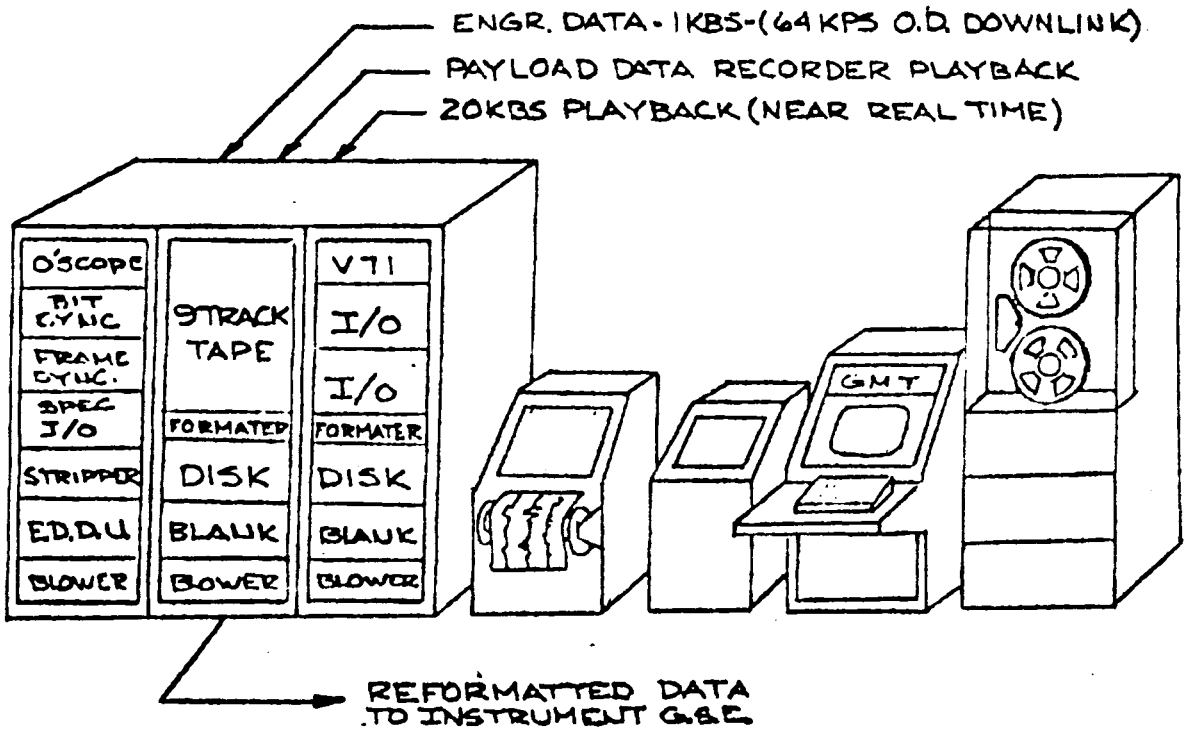
SECTION 14

USER SUPPLIED GROUND SUPPORT EQUIPMENT

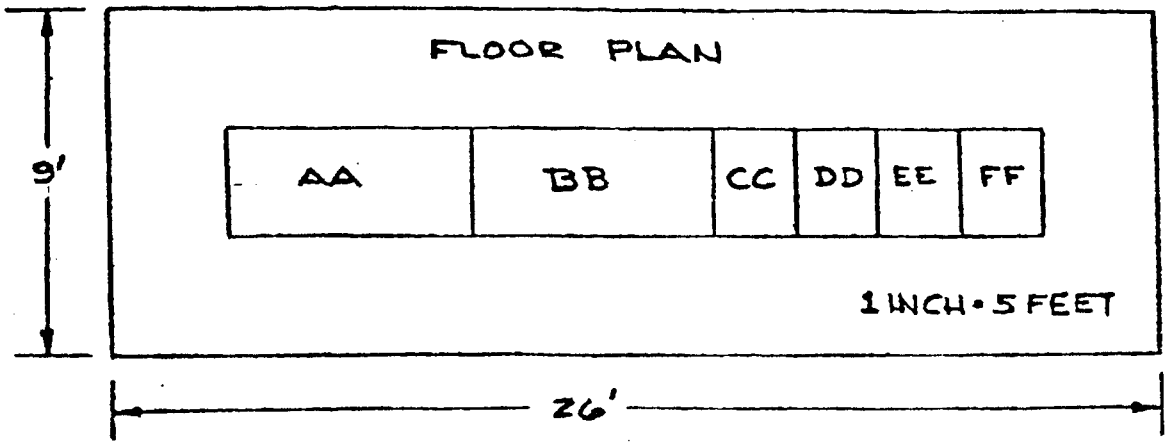
The information in this section indicates the user GSE that will be installed in the POCC for OSS-1.

POCC SUPPORT
V71 SYSTEM CONFIGURATION

- RECORD DOWNLINK DATA FOR POST PASS PLAYBACK
- PROVIDE ALL CRT & PRINTER OUTPUT AVAILABLE IN LEVEL IV (WITH-IN LIMITS OF DOWNLINK
- PROCESS 1KBS ENGR. DATA NEAR REAL TIME & POST PASS
- PROCESS TAPE PLAYBACK POST PASS
- PROCESS 20KBS NEAR REAL TIME & POST PASS
- PROVIDE HARDCOPY COMMAND OUTPUTS FOR MCC ENTRY



PRELIMINARY J.S.C/P.O.C.C. FACILITY REQUIREMENTS
(POCC SUPPORT V71 SYSTEM)



ITEM	DESCRIPTION	WIDTH	DEPTH	HEIGHT	A.C. POWER
AA	TABLE (G.S.E.)	72"	34"	30"	1 Φ 120V 10AMP
BB	CPU RACK	72"	33"	65"	1 Φ 120V 60AMP
CC	STRIP CHART	24"	33"	48"	1 Φ 120V 4AMP
DD	PRINTER	19"	18"	38"	1 Φ 120V 8AMP
EE	CONSOLE	24"	33"	48"	1 Φ 120V 3AMP
FF	TAPE RECORDER	24"	33"	80"	1 Φ 120V 15AMP

NOTES
1. ESTIMATED DISSIPATION - 7.5 KILOWATTS
2. FLOOR PLAN INCLUDES FRONT & REAR DOOR CLEARANCE
3. RAISED FLOORING DESIREABLE BUT NOT A REQUIREMENT.

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