NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

SEP 24 1973

REPLY TO
ATTN OF: MLB-1

MEMORANDUM

TO: Distribution

FROM: ML/Director, Skylab Program

SUBJECT: Change 1 to Skylab Program Directive No. 4G

REF: SPD-4G dated 3/12/73, subj: Work Authorization Directive (WAD)

Change 1 (attached) to the referenced SPD consists of: (1) page changes to be substituted for the superseded pages of the Work Guidelines, Attachment A of the reference, and (2) line and item changes to be emended in the Skylab Controlled Milestones, Attachment C of the reference. Generally, these changes have been previously approved by telegraphic messages, memoranda, and letters, and are being embodied in SPD-4 for updating and record purposes.

William C. Schneider

Attachment

OFFICE OF MANNED SPACE FLIGHT PROGRAM DIRECTIVE	M-D ML 3200.107 (Project)	DATE SEP 24 1973

DISTRIBUTION

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M/Myers
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MSFC

SL-MGR/Belew
SL-PC/Wood (10)
SAT-MGR/Smith
SAT-PS/Johnston

JSC

KS/Kleinknecht
BT-6/Dell
BT-12/Shapiro
JM-86/Brazil (75)

KSC

AA/Hock
AA-PCO/Noyd
AA-PCO-2/Smith (75)
AA-SVO/Raffaeli

GSFC

Director

LaRC

Director

ARC

Director

5.1 Experiment Data Financial Support

Skylab intends to provide financial support to Principal Investigators (P.I.) for completion of post-flight experiment data analysis and reporting for a maximum period of one year from the time they receive the last of their data. Should it be pre-determined that one year is not sufficient time for completing the analysis and reporting, the P.I.'s should make prior agreement for additional funding with their experiment sponsoring office. Skylab cannot presently identify any instances in which it will take more than three months after splashdown of SL-4 (scheduled for January 1974) to have all required data in the hands of the P.I.'s. Thus, Skylab will provide financial for P.I. support, data analysis and reporting through March 1975 in those instances where the last experiment data are returned in the SL-4 Command Module. Where the data are to be returned earlier, Skylab will provide financial support for a shorter period. (Ref: Memo from M to S, dated 12/19/72; subj: OSS Experiment Funding After Termination of Skylab Activities, Similar Memos from ML to MM, MT, and RS.)

5.2 Spacecraft Modifications

The SLA panels will be modified so they will remain attached to the S-IVB stages. (Ref: Hq Msg MLO-524, dated 11/27/72; subj: Deorbit of Skylab S-IVB's.)

5.3 Backup Saturn V/SWS

Effective August 15, 1973, the requirement was deleted from the Skylab Program for maintaining the capability of launching Skylab Backup hardware within fifteen months after the launch decision. The work associated with completion, checkout, and support of Skylab Backup hardware, experiments, software, facilities, and GSE has been cancelled. The exception is such work that directly supports Skylab SL-3, SL-4, and Rescue missions. Storage/Disposition of Backup hardware and associated GSE facilities will be directed later. (Ref: Msg MLB/253 of 8/15/73; subj: Cancellation of Backup Saturn V/Workshop Launch Capability.)

5.4 Launch Vehicles

5.4.1 Saturn IB 206-209

Post production support of SA 206-209 will be continued.

It has been decided that the reentry of the S-IVB stages for SL-2, -3, and -4 will be controlled by dumping propellants. The necessary modificazions will be made to the S-IVB stages and IU's to assure this capability. (Ref: HQ Msg MLO-524, dated 11/27/72; subj: Deorbit of Skylab S-IVB's.)

5.4.2 Saturn IB 210

SA-210 has been assigned to the Apollo-Soyuz Test Project (ASTP). Modification and in-plant checkout of SA-210 stages will be completed.

5.4.3 Saturn V 515

(Deleted by Msg MLB/253 dated 8/15/73)

5.4.4 Unassigned Launch Vehicle Stages

1. SA-211 Stages: IU-211 modifications will be completed and the schedule stretched out; S-IVB-211 modification kit will not be installed; stages will not be checked out. (Ref: Presentation by M to A 9/18/72.)

Stage S-IB-211 will be completed but not checked out. (Ref: MLB Msg dated 5/2/73; subj: Completion of S-IB-211.)

2. IU-212 modifications will be stopped. (Ref: HQ Msg MLB/329, dated 8/18/72; subj: Cost Limitation Planning.)

3. S-IB-12, 13, and 14 stages have completed manufacturing and are in storage. No further work is authorized. (Ref: HQ Msg MLB/329 dated 8/18/72; subj: Cost Limitation Planning.)

5.4.5 Storage/Disposition of Unassigned Hardware

1. Skylab will follow the approach stated in the letter M to MSFC Director, copies to KSC and JSC Directors, dated 5/11/73, subj: Storage of Unassigned Saturn/Skylab Hardware. Portions of this letter are paraphrased below for guidance.

5.4.5 Storage/Disposition of Unassigned Hardware (cont.)

We should proceed with a minimum-cost storage mode, recognizing that 18 to 24 months would be needed between a decision for flight and the availability of hardware in flight status.

Two Saturn V's, two Saturn IB's, three CSM's, and the backup Skylab cluster and appropriate spares can be placed in the minimum-cost storage mode as soon as program requirements permit.

Items to be placed in storage when directed after completion of Skylab and ASTP: SA-515, SA-209, CSM 119, Backup Skylab Cluster.

Items to be placed in storage now: SA-514, SA-211 (after completion of current modifications on S-IB-211), CSM 115, CSM 115a.

Items for immediate disposal: S-IB Stages 212, 213, 214; IU 212; Extra Spares; Extra GSE.

2. Skylab's plan will be prepared in accordance with the guidelines of ML memo to Center Managers, dated 8/30/73, subj: Storage and Disposition of Skylab Hardware and Associated GSE.

5.5 Program Support (Deleted)

6.0 SCHEDULE GUIDELINES

6.1 Backup Rescue Saturn IB/CSM

For planning purposes, the Rescue space vehicles will be ready to launch no later than 49 days after the decision to launch. This reaction time could be as short a time span as ten days, depending upon when in the test flow the decision is made to launch.

6.2 Backup Saturn V/SWS

(Deleted by Msg MLB/253 dated 8/15/73)

Purposely Left Blank

CONTROLLED MILESTONES CHANGES

(ATTACH. C TO SPD-4G)

	FLIGHT SL-1	RESP	FROM	TO
p 1.	Orbital Workshop			
	4. Complete Component Qual/Verification	MSFC	15 Apr 1973	15 Apr 1973 (Compl)
p 3.	ATM System			
	17. Final Software KSC Need Date	KSC	7 Mar 1973	7 Mar 1973 (Compl)
p 4.	Launch Vehicle			
	6. Deliver LV Digital Computer Final Software to KSC	MSFC	6 Mar 1973	6 Mar 1973 (Compl)
	7. LVDC Final Software KSC Need Date	KSC	7 Mar 1973	7 Mar 1973 (Compl)
p 5.	KSC Operations			
	3. Launch Complex 39, Pad A, Operational Ready	KSC	12 Mar 1973	12 Mar 1973 (Compl)
	4. Complete Flight Readiness Review	KSC	19-20 Apr 1973	18 -20 Apr 1973 (Compl)
	5. SL-1 Space Vehicle Ready for Launch	KSC	14 May 1973	14 May 1973 (Compl)
	FLIGHT SL-2			
p 7.	KSC Operations			
	2. Complete Flight Readiness Review	KSC	19-20 Apr 1973	18-20 Apr 1973 (Compl)
	3. SL-2 Space Vehicle Ready for Launch	KSC	15 May 1973	25 May 1973 (Compl)

Change 1

CONTROLLED MILESTONES CHANGES

(ATTACH C TO SPD-4G)

FLIGHT SL-3

		RESP	FROM	TO
p 8.	Launch Vehicle			
	1. Complete Stage Predelivery Turn-over Reviews	MSFC	1 Apr 1973	25 Apr 1973 (Compl)
	2. Deliver S-IB-207 to KSC	MSFC	5 Apr 1973	30 Mar 1973 (Compl)
	3 S-IB-207 KSC Need Date	KSC	12 Apr 1973	30 Mar 1973 (Compl)
	4. Change "Deliver S-IU-207 to KSC" to "Deliver S-IU-208 to KSC"	MSFC	12 Apr 1973	9 May 1973 (Compl)
	5. Change "S-IU-207 KSC Need Date" to "S-IU-208 KSC Need Date"	KSC	3 Apr 1973	9 May 1973 (Compl)
	6. Deliver LV Digital Computer Final Software	MSFC	7 May 1973	2 July 1973 (Compl)
	7. LVDC Final Software KSC Need Date	KSC	7 May 1973	5 July 1973 (Compl)
p 9.	KSC Operations			
	1. Complete Flight Readiness Review	KSC	Under Review	12 July 1973 (Compl)
	2. SL-3 Space Vehicle Ready for Launch	KSC	8 Aug 1973	28 July 1973 (Compl)

Change 1

CONTROLLED MILESTONES CHANGES

(ATTACH C TO SPD-4G)

FLIGHT SL-4

		RESP	FROM	TO
p 10.	Spacecraft			
	2. G&N Flight Software KSC Need Date	KSC	14 May 1973	14 May 1973 (Compl)
p 10	Launch Vehicle			
	1. Complete Stage Predelivery Turn-over Review	MSFC	1 Jun 1973	23 May 1973 (Compl)
	2. Deliver S-IB-208 to KSC	MSFC	11 Jun 1973	20 Jun 1973 (Compl)
	3. S-IB-208 KSC Need Date	KSC	11 Jun 1973	20 Jun 1973 (Compl)
	4. Change "Deliver S-IU-208 to KSC" to "Deliver S-IU-207 to KSC"	MSFC	19 Jun 1973	12 Jun 1973 (Compl)
	5 Change "S-IU-208 KSC Need Date" to "S-IU-207 KSC Need Date"	KSC	19 Jul 1973	12 Jun 1973 (Compl)
	6. Deliver LV Digital Computer Final Software	MSFC	8 Aug 1973	20 Aug 1973 (Compl)
	7. LVDC Software KSC Need Date	KSC	8 Aug 1973	20 Aug 1973 (Compl)
p 11.	KSC Operations			
	1. Complete Flight Readiness Review	KSC	Under Review	17 Oct 1973
	2. SL-4 Space Vehicle Ready for Launch	KSC	9 Nov 1973 (Planning Only)	9 Nov 1973 (As adjusted by orbital mechanics)

Change 1

CONTROLLED MILESTONES CHANGES

(ATTACH. C TO SPD-4G)

FLIGHT BACKUP/RESCUE

		RESP	FROM	TO
p 12.	Spacecraft			
	1. G&N Final Flight Software Program Delivery	JSC	4 Sept 1973	4 Sept 1973 (Compl)
	2. G&N Flight Software KSC Need Date	KSC	4 Sept 1973	4 Sept 1973 (Compl)
	4. CSM-119 Available for Delivery to KSC	JSC	4 May 1973	2 May 1973 (Compl)
	5. CSM-119 Required On-Dock At KSC	KSC	7 May 1973	7 May 1973 (Compl)
p 12.	Launch Vehicle			
	1. Complete Stage Predelivery Turn-over Reviews	MSFC	19 Aug 1973	9 Aug 1973 (Compl)
	2. Deliver S-IB-209 To KSC	MSFC	6 Sept 1973	20 Aug 1973 (Compl)
	3. S-IB-209 KSC Need Date	KSC	6 Sept 1973	20 Aug 1973 (Compl)
	4. Deliver S-IU-209 To KSC	MSFC	24 Oct 1973	14 Jun 1973 (Compl)
	5. S-IU-209 KSC Need Date	KSC	24 Oct 1973	14 Jun 1973 (Compl)
p 14.	Backup Saturn V/Workshop Hardware			
	Delete all milestones (Ref: Msg MLB/336 dated 4/20/73, subj: Deletion of Backup Saturn V SA-515 Controlled Milestones)			

NASA-HQ

Change 1

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN F. KENNEDY SPACE CENTER
KENNEDY SPACE CENTER, FLORIDA 32899

REPLY TO ATTN OF: AA-PCO

NOV 16 1973

MEMORANDUM

TO: Distribution

FROM: AA/Manager, Sciences, Applications, Skylab, and ASTP Programs

SUBJECT: Change 1 to SPD #4G, "Work Authorization Directive (WAD)," dated March 12, 1973

The attached change 1 to SPD #4G is provided for your information. A copy of my Briefing Note to the Center Director is attached to provide you a summary of the effect of changes.

The number of copies indicated for distribution in your organization represents an estimate of what you may require. Additional copies may be obtained from AA-PCO (867-7485)

William H. Rock
William H. Rock

Enclosure

Distribution:
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QA/Director, Quality Assurance (1)
SF/Director, Safety Office (1)
IN/Director, Information Systems (1)
LS/Director, Spacecraft Operations (1)
LV/Director, Launch Vehicle Operations (1)
SO/Director, Support Operations (1)

BRIEFING NOTE TO: CD/Dr. Debus

NOV 14 1973 AA

SUBJECT: Change 1 to Skylab Program Directive No. 4G, "Work Authorization Directive (WAD)" dated March 12, 1973

The subject change incorporates into the Directive, those directions associated with cancellation of backup Saturn/SWS hardware as stated in message MLB/253 dated 8/15/73, (attached).

This document also addresses changes to disposition of residual S-1B stages, i.e., S-1B-211 will be completed but not checked out, and stages 12, 13, and 14 shall be disposed of in accord with follow-on message MLB-1/094 (attached). Paragraph 5.4.5 includes directions for storage/disposition of Unassigned Hardware.

This change also deletes the requirement for Skylab to provide limited financial support to the Office of University Affairs.

Control Milestones for flight hardware deliveries and KSC operations have been updated to reflect actual completion dates.

William H. Rock
Enclosure: Change 1 to SPD 4G

NASA/KSC NOV/73

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
JOHN F. KENNEDY SPACE CENTER
KENNEDY SPACE CENTER, FLORIDA 32899

REPLY TO ATTN OF: AA-PCO

APR 3 1973

MEMORANDUM

TO: Distribution

FROM: AA/Manager, Apollo-Skylab Programs

SUBJECT: SPD #4G, "Work Authorization Directive (WAD)," dated March 12, 1973

The attached SPD #4G is provided for your information. A copy of my Briefing Note to the Center Director is attached to provide you a summary of the effect of changes from the previous directive, SPD #4F.

The number of copies indicated for distribution in your organization represents an estimate of what you may require. Additional copies may be obtained from AA-PCO (867-7485).

Robert C. Hock

Robert C. Hock

Enclosure

Distribution:
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SP/Manager, Shuttle Projects (1)
SA/Manager, Sciences & Applications (1)
IS/Director of Installation Support (2)
LO/Director of Launch Operations (4)
TS/Director of Technical Support (3)
QA/Director, Quality Assurance (1)
SF/Director, Safety Office (1)
IN/Director, Information Systems (1)
LS/Director, Spacecraft Operations (1)
LV/Director, Launch Vehicle Operations (1)
SO/Director, Support Operations (1)

BRIEFING NOTE TO: Dr. Debus

SUBJECT: Skylab Program Directive #4G, "Work Authorization Directive (WAD)," Dated March 12, 1973

The subject SPD supersedes SPD #4F dated January 3, 1972. With the exception of errors in the KSC Need Dates for S-IB 7 (should read 4-5-73) and S-IU 207 (should read 4-12-73), this directive reflects the latest planning dates for flight module and software deliveries to KSC. These errors will be corrected via the monthly Level I Schedules Plan.

The Pad A ORD, shown open in this directive, was essentially met prior to March 12, 1973. As in the past, several modifications remain to be installed and will be completed prior to vehicle need. Correspondence from my office to the Program Director has been initiated to formally close out this open milestone. As stated in the cover letter, the body of this directive has been revised and a Skylab Work Guidelines Attachment has been added to further define and amplify the work previously described in the SPD body.

Robert C. Hock

Enclosure: SPD-4G

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

MAR 12 1973

REPLY TO
ATTN OF: MLB

TO: Marshall Space Flight Center
Attn: SL-MGR/Manager, Skylab Program
Attn: SAT-MGR/Manager, Saturn Program

Johnson Space Center
Attn: KA/Manager, Skylab Program

Kennedy Space Center
Attn: AA/Manager, Apollo/Skylab Programs

FROM: ML/Director, Skylab Program

SUBJECT: Work Authorization Directive, PD-4

Attached is revision G to Program Directive 4, Work Authorization Directive.

Changes to the previous version are summarized as follows:

1. The body of the PD has been completely revised to refer to the Program Plan as the baseline plan instead of the PAD; this necessitated a change in the structure of the PD content. Basically, the direction and information in this version is similar to that included in the previous version; but some information is now in the Work Guidelines attachment that had previously been in the PD body. Also, the procedures that we have been following all along are now more fully documented in this version.

2. The distribution list has been updated.

3. The Work Guidelines, Attachment A, has been updated to include: a change in experiment-data-analysis financial support; SLA panel modifications due to deorbit requirements; Backup Saturn V/SWS guidelines previously directed by telegraphic message, including the recent message of 2/14/73 for removal of EREP experiments for bench tests; the latest LV guidelines, including Saturn IB modifications for deorbit; status of unassigned stages as well as preliminary storage instructions; and limited financial support to the Office of University Affairs.

4. No change to the End-Item List.

3/15/73

5. Controlled Milestones have been updated to include the latest changes. The launch dates are stated as "planning only."

Please contact Mr. Pem Field if there are any questions.

John W. Finke
for
William C. Schneider

Attachment: as stated

OFFICE OF MANNED SPACE FLIGHT PROGRAM DIRECTIVE	M-D ML 3200.107 (Project)	DATE MAR 12 1973

SKYLAB
PROGRAM DIRECTIVE NO. 4G

TO: Distribution

FROM: William C. Schneider
Director, Skylab Program

SUBJECT: Work Authorization Directive (WAD)

OFFICE OF PRIME RESPONSIBILITY: Skylab Program Budget and Control (MLB)

I. PURPOSE, SUPERSESSION, AND PRECEDENCE

This directive authorizes and directs the work to be accomplished in the Skylab Program.

This directive supersedes SPD No. 4F, dated January 3, 1972.

The requirements of this directive shall govern if there is a variance between this document and any other Skylab document.

II. WORK AND FUNDING AUTHORIZATION

A. Work Authorization

MSFC, JSC, and KSC Skylab Program Managers, the Saturn Program Manager, and managers of other organizational elements supporting the Skylab Program are authorized and directed to accomplish the work described in the Program Plan and further defined in this WAD.

The Program Plan is the baseline plan for proceeding with the Skylab Program; it serves as the basic agreement between the Associate Administrator for MSF and the Skylab Program Director.

In turn, the Skylab Program Approval Document is the basic authorization document and serves as the basic agreement between the NASA Deputy Administrator and the Associate Administrator for MSF.

B. Funding Authorization

The Program Director will authorize the funding of the work defined in this WAD by use of NASA Form 506 (Resources Authority Warrant). Expenditure of Skylab funds shall be limited to effort in support of the work authorized in this WAD.

The Skylab portion of the current MSF Research and Development Program Operating Plan (POP), including its guidelines, is the resources baseline plan for Skylab. As a resources plan, the POP is not intended to be, nor should it be construed to be, a directive for accomplishment of work.

III. WORK, GUIDELINES, END-ITEM LIST, AND SCHEDULES

A. Work Guidelines

Portions of the work described in the Program Plan are further defined and amplified in the Skylab Work Guidelines, Attachment A.

B. End-Item List

The Skylab End-Item List, Attachment B, is the approved list, with quantities, of all major Skylab hardware and software, including training and backup hardware. No other major hardware and software is authorized; for experiments, only those listed in the Skylab Program Specification (SE 140-001-1) are authorized for development.

C. Schedules

1. Baseline Schedule. The approved baseline schedule is the Skylab Launch-Readiness and Delivery Schedule published in the Level I Schedules Plan, which also contains summarized flight schedules and experiments controlled-milestone schedules. The purpose of the Level I Schedules Plan is to publish periodically an updated summary of program-level schedule direction and information.

2. Controlled Milestones. Controlled milestones are the events, and associated dates, which are of major significance to the completion of the program, and are so designated by the Program Director; as such, they require the written approval of the Program Director before they can be changed. The following types of milestones have been designated as controlled: deliveries of major flight, test, and training hardware; deliveries of other major end items, such as software and GSE; qualification/verification of major hardware articles; key reviews; important interfaces among Centers; completion of key tests; facility operational-readiness dates; and launch-readiness dates.

Attachment C is a list of Skylab Controlled Milestones, organized by flight and by major hardware.

IV. PROCEDURES

The Work Guidelines, End-Item List, and Controlled Milestones will be maintained as described in the following paragraphs.

A. Baseline

Using this WAD as the baseline, Center Program Managers shall reflect in their plans, schedules and other implementing documentation the requirements of the Work Guidelines and include those End Items and Controlled Milestones applicable to their responsibilities.

B. Proposed Changes

Center Program Managers shall notify the Program Director immediately whenever a situation exists, or is anticipated to exist, that could impact the requirements of this WAD.

Proposed changes to the Work Guidelines, End Items or quantities, Controlled Milestones or their dates shall require the written approval of the Program Director prior to implementation of the change. Sufficient information concerning the changes shall be submitted to allow proper evaluation. This information should include the reason for the change, and an estimate of the impact on schedule, cost, and technical performance.

Hardware/Software configuration changes will be submitted for approval in accordance with Skylab Program Directive No. 34, Program CCB Control and Reporting Requirements.

C. Decisions Feedback

Decisions will be returned, in documented form, to the Center Manager as soon as possible, and in the case of controlled milestones, in time for the succeeding Center-schedule cycle.

Program decisions and guidelines will be documented in the succeeding versions of this WAD. During the time intervals between WAD revisions, the requirements of this WAD will be kept current and documented by telegraphic messages or letters and reflected in the next-published issue of the Skylab Program Level I Schedules Plan.

Center plans and schedules shall then reflect the changes documented in the Level I Schedules Plan.

ATTACHMENTS

A. Skylab Work Guidelines
B. Skylab End-Item List
C. Skylab Controlled Milestones

OFFICE OF MANNED SPACE FLIGHT PROGRAM DIRECTIVE	M-D ML 3200.107 (Project)	DATE MAR 12 1973

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JSC

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BT-12/Shapiro
JM-86/Brazil (75)

KSC

AA/Hock
AA-PCO/Noyd
AA-PCO-2/Smith (75)
AA-SVO/Raffaeli

GSFC

Director

LaRC

Director

ARC

Director

WORK GUIDELINES

1.0 GENERAL

The work described in the Program Plan is authorized for implementation. The Technical Plan (Chap. 2.0) and Schedules (Chap. 7.0) of the Program Plan are amplified in the following paragraphs.

2.0 FLIGHT MISSIONS

2.1 Operations Directive

The Skylab Operations Directive (PD-43) is a plans and requirements document. Its purpose is to issue to the implementing Centers the missions and operations policies and requirements, mission objectives, and mission-planning instructions. It contains program objectives, general policies and requirements, and a catalog of major operational documents; the description, objectives, and planning requirements for each mission; the assignment and scheduling instructions for each approved Skylab experiment; and a glossary of terms and definitions.

2.2 Mission Data

Figure A-1 depicts for each scheduled and "planning only" flight a summary of mission objectives, launch-vehicle assignments, launch-complex assignments, payload, and manned-flight durations. The Backup Saturn IB/CSM and Backup Saturn V/SWS are for planning only.

3.0 HARDWARE AND SOFTWARE

The Skylab End-Item List (Attachment B) is the approved list, with quantities, of all major Skylab hardware and software, including training and backup hardware.

4.0 TECHNICAL REQUIREMENTS

The Skylab Program Specification (SE 140-001-1) specifies the major functional and performance requirements for the Program. It contains applicable documents; technical requirements; test and quality assurance requirements; and control weights and launch vehicle performance information.

5.0 PROJECTS

This section amplifies portions of the Project Descriptions section (para. 2.4) of the Program Plan.

SKYLAB MISSION DATA SUMMARY

MISSION	SL-1	SL-2	SL-3	SL-4	BACKUP SAT IB/CSM	BACKUP SAT V/SWS
OBJECTIVES	ESTABLISH THE SKYLAB ORBITAL ASSEMBLY IN EARTH ORBIT OBTAIN MEDICAL DATA PERFORM IN-FLIGHT EXPERIMENTS		PERFORM UNMANNED SWS OPERATIONS REACTIVATE THE ORBITAL ASSEMBLY OBTAIN MEDICAL DATA PERFORM IN-FLIGHT EXPERIMENTS BE AVAILABLE FOR SL-2 RESCUE	PERFORM UNMANNED SWS OPERATIONS REACTIVATE THE ORBITAL ASSEMBLY OBTAIN MEDICAL DATA PERFORM IN-FLIGHT EXPERIMENTS BE AVAILABLE FOR SL-3 RESCUE	BACKUP BE AVAILABLE FOR SL-4 RESCUE	BACKUP SWS
LAUNCH VEHICLE	SATURN V-513 (S-IC & S-II)	SATURN IB-206	SATURN IB-207	SATURN IB-208	SATURN IB-209	SATURN V-515
LAUNCH COMPLEX	39A	39B	39B	39B	39B	39A
PAYLOAD	SAT WORKSHOP OWS (S-IVB-212) AM MDA ATM EXPERIMENTS	CSM-116/SLA-23 3-MAN CREW EXPERIMENTS	CSM-117/SLA-24 3-MAN CREW EXPERIMENTS RESUPPLY ITEMS	CSM-118/SLA-6 3-MAN CREW EXPERIMENTS RESUPPLY ITEMS	CSM-119/SLA-25 <u>BACKUP</u> 3-MAN CREW EXPERIMENTS <u>RESCUE</u> 2-MAN CREW	SATURN WS OWS (S-IVB-515) AM MDA ATM EXPERIMENTS
MANNED FLIGHT DURATION	APPROX. 5 MOS OVER AN 8 MO. PERIOD	UP TO 28 DAYS	UP TO 56 DAYS	UP TO 56 DAYS	<u>RESCUE</u> UP TO 5 DAYS	SAME AS SL-1

8-28-72 MLB72-2156-2

Figure A-1 Skylab Mission Data Summary

5.1 Experiment Data Financial Support

Skylab intends to provide financial support to Principal Investigators (P.I.) for completion of post-flight experiment data analysis and reporting for a maximum period of one year from the time they receive the last of their data. Should it be pre-determined that one year is not sufficient time for completing the analysis and reporting, the P.I.'s should make prior agreement for additional funding with their experiment sponsoring office. Skylab cannot presently identify any instances in which it will take more than three months after splashdown of SL-4 (scheduled for January 1974) to have all required data in the hands of the P.I.'s. Thus, Skylab will provide financial support for P.I. support, data analysis and reporting through March 1975 in those instances where the last experiment data are returned in the SL-4 Command Module. Where the data are to be returned earlier, Skylab will provide financial support for a shorter period. (Ref: Memo from M to S, dated 12/19/72; subj: OSS Experiment Funding After Termination of Skylab Activities, Similar memos from ML to MM, MT, and RS.)

5.2 Spacecraft Modifications

The SLA panels will be modified so they will remain attached to the S-IVB stages. (Ref: HQ Msg ML0-524, dated 11/27/72; subj: Deorbit Skylab S-IVB's.)

5.3 Backup Saturn V/SWS (Ref: ML Ltr to Ctr Mgrs of 12/5/72; Subj: Backup Program Definition)

5.3.1 Reaction Time. The capability to launch the Backup Saturn V Workshop within twelve to fifteen months after go-ahead shall be maintained through September 30, 1973.

5.3.2 Backup OWS. The backup OWS will be completed through fabrication and assembly and placed on standby at the contractor's plant in Huntington Beach, California. Experiments will not be installed.

5.3.3 MDA. The backup MDA manufacturing and checkout has been completed and the module shipped to MDAC-E, St. Louis, Missouri.

5.3.4 AM. The AM will be assembled and mated with the MDA (at St. Louis.

5.3.5 AM/MDA and EREP Experiments. The mated backup AM/MDA will be tested through a simulated flight test. This testing will be a confidence test program (in support of SL-1) versus post manufacturing and predelivery checkout. The EREP experiments and ATM Qual Unit C&D (continued on next page).

will be installed in the AM/MDA at an appropriate period during the test flow to verify function and interfaces. Upon completion of testing, the EREP experiments will be removed for bench test mission-support activity at MMC. The backup AM/MDA will be placed on standby at the contractor's plant in St. Louis, Missouri. (Revised by ML Msg of 2/14/73, subj: Backup Program Definition)

5.3.6 ATM. The ATM prototype unit, including the prototype C&D panel, will be refurbished, designated the backup ATM, then placed on standby at MSFC.

5.3.7 B/U OWS Experiments. The B/U OWS experiments will be delivered to bonded storage at contractor's plant or at KSC as OWS-1 flight spares until further program direction is given.

5.3.8 Backup Saturn V. Saturn V launch vehicle 515 (i.e., S-IC-15, S-II-15, and S-IU-515) is assigned as the backup vehicle. The S-IC will be in standby at MAF, the S-II is at KSC and will be in standby, and the S-IU will be in standby at IBM, Huntsville until the decision date of about the end of September 1973.

5.4 Launch Vehicles

5.4.1 Saturn IB 206-209

Post production support of SA 206-209 will be continued.

It has been decided that the reentry of the S-IVB stages for SL-2, -3, and -4 will be controlled by dumping propellants. The necessary modifications will be made to the S-IVB stages and IU's to assure this capability. (Ref: HQ Msg MLO-524, dated 11/27/72; subj: Deorbit of Skylab S-IVB's.)

5.4.2 Saturn IB 210

SA-210 has been assigned to the Apollo-Soyuz Test Project (ASTP). Modification and in-plant checkout of SA-210 stages will be completed.

5.4.3 Saturn V 515

Authorization has been given to incorporate Skylab modifications. (Ref: HQ Msg MLB-410, dated 5/23/72; subj: Skylab Modifications to Vehicle SA-515.)

As many outstanding modifications as possible will be incorporated, both at KSC and IBM, Huntsville, into SA-515 stages in parallel with the mainstream Skylab activities. (Ref: Ltr. MSFC SAT-MGR dated 7/27/72; subj: Skylab Modifications to Vehicle SA-515.)

5.4.4 Unassigned Launch Vehicle Stages

1. SA-211 Stages: IU-211 modifications will be completed and the schedule stretched out; S-IB-211 and S-IVB-211 modification kits will not be installed; stages will not be checked out. (Ref: Presentation by M to A 9/18/72.)

2. IU-212 modifications will be stopped. (Ref: HQ Msg MLB-329, dated 8/18/72; subj: Cost Limitation Planning.)

3. S-IB-12, 13, and 14 stages have completed manufacturing and are in storage. No further work is authorized. (Ref: HQ Msg MLB-329 dated 8/18/72; subj: Cost Limitation Planning.)

5.4.5 Residual Launch Vehicle Storage and Disposal

The storage and disposition of residual Skylab launch vehicle hardware is being studied in the context of the storage and disposition of all MSF residual hardware. The current proposal concerning Skylab hardware is, assuming no failures in Skylab and ASTP (SA-210), to provide for minimum-cost storage of Saturn V 515 and Saturn IB's 209 and 211 for a practical period of time and to dispose of the remaining S-IB stages, IU-212, extra spares, and GSE. Within the limitations of the preceding sentence, the general storage ground rules being considered are those of MSFC's Plan III, summarized as follows: prepare and store unassigned stages at current locations; utilize the MAF Facility Operations Contractor for maintenance of S-IC and S-IB stages in storage; maintain all IU's and LVGSE in storage at MSFC.

Follow-up instructions and requirements will be issued by the Associate Administrator for MSF and by revisions to this Directive. (Ref: (1) Summary of January Management Council Action Items, (2) Mr. R. G. Smith's presentation to Management Council, 1/10/73, Plan III.)

5.5 Program Support

Skylab will provide limited financial support to the Office of University Affairs.

6.0 SCHEDULE GUIDELINES

6.1 Backup Rescue Saturn IB/CSM

For planning purposes, the Rescue space vehicles will be ready to launch no later than 49 days after the decision to launch. This reaction time could be as short a time span as ten days, depending upon when in the test flow the decision is made to launch.

6.2 Backup Saturn V/SWS

It is planned to be able to launch the backup SWS flight within twelve to fifteen months after go-ahead. This capability will be maintained through September 30, 1973.

SKYLAB END ITEM LIST

CSM	REQUIREMENTS	RESPONSIBILITY
1. CSM Block II Structure & Systems/Components	4	*JSC
2. Modified CSM (Skylab Configured)	4	*JSC
3. SC G&N System (Hardware)	4	*JSC
4. SC G&N Software Flight Programs	4	JSC
5. Spacecraft-Lunar Module Adapters (SLA)	4	*JSC
6. Launch Escape System (LES)	4	*JSC
7. CM One "G" Trainer	1	*JSC
8. CM Zero "G" Trainer	1	*JSC
9. Neutral Buoyancy Trainer	1	*JSC
10. CM Docking Hardware Mockup	1	*JSC
11. CSM GSE (set)	1	*JSC
Launch Vehicles		
1. Saturn IB (Note 1)	4	MSFC/Saturn
2. Saturn IB LV Digital Computer (LVDC) Software	4	MSFC/Saturn
3. Saturn IB ESE & GSE (Set)	1	*MSFC/Saturn
4. Saturn V	2	*MSFC/Saturn
5. Saturn V LV Digital Computer (LVDC) Software	2	*MSFC/Saturn
6. Saturn V ESE & GSE (Set)	1	*MSFC/Saturn

NOTE 1: Saturn IB quantities as follows: 3 for Skylab flts, 1 for backup, and 3 in storage.

* - Obtained from Apollo Program

SKYLAB END ITEM LIST

Airlock	REQUIREMENTS	RESPONSIBILITY
1. Flight Article and Backup	2	MSFC
2. Mockup (To become One "G" Trainer, includes ATM Deployment Assembly mockup later to be converted to trainer)	1	MSFC
3. Zero "G" Test Article (To become Zero "G" Trainer)	1	MSFC
4. Neutral Buoyancy Test Article (To become Neutral Buoyancy Trainer)	1	MSFC
5. Structural Test Article	1	MSFC
6. GSE (Set)	1	MSFC
Orbital Workshop		
1. S-IVB Stages (Flt Unit & Backup) to be modified into an Orbital Workshop	2	MSFC
2. GSE (Set)	1	MSFC
3. Workshop Neutral Buoyance Test Article (To become Neutral Buoyancy Trainer)	1	MSFC
4. Workshop Engineering Mockup (One to become One "G" Trainer)	2	MSFC
5. Dynamics Test Article	1	MSFC
6. Zero "G" Hardware (To become Zero "G" Trainer, Includes Crew Quarters Trainer and Duct Fan Trainer	1	MSFC

SKYLAB END ITEM LIST

Multiple Docking Adapter	REQUIREMENTS	RESPONSIBILITY
1. Flight Unit and Backup	2	MSFC
2. GSE (Set)	1	MSFC
3. Neutral Buoyancy Test Unit (To become Neutral Buoyancy Trainer)	1	MSFC
4. Mockup (To become One "G" Trainer)	1	MSFC
5. Dynamic Test Article	1	MSFC
6. Structural Test Unit	1	MSFC
7. Zero "G" Test Article (To become Zero "G" Trainer)	1	MSFC
Payload Shroud		
1. Flight Unit and Backup	2	MSFC
2. Test Hardware (Set)	1	MSFC
ATM		
1. Flight Unit	1	MSFC
2. Prototype Unit (Backup for Flight Unit)	1	MSFC
3. ACE Station at MSFC, JSC & KSC	3	*JSC
4. ESE (Set)	2	MSFC
5. Neutral Buoyancy Test Article (To become Neutral Buoyancy Trainer)	1	MSFC

* - Obtained from the Apollo Program

SKYLAB END ITEM LIST

		REQUIREMENTS	RESPONSIBILITY
6.	Structural Test Article	1	MSFC
7.	Thermal Test Article	1	MSFC
8.	Vibration Test Article	1	MSFC
9.	Controls and Display Simulator	1	MSFC
10.	One "G" Trainer	1	MSFC
11.	Control and Display Flight Units	2	MSFC
12.	ATM Digital Computer Software Flight Programs	2	MSFC
13.	Zero "G" Trainer	1	MSFC
	Training Simulators		
1.	Saturn Workshop Simulator (SWSS)	1	JSC
2.	Command Module Procedures Simulator	1	JSC
3.	Dynamic Crew Procedures Simulator	1	JSC
4.	Command Module Simulator	1	JSC
	Experiments		
1.	Flight Unit and Backup (or Sets)	2	Dev. Ctr
2.	Experiment Training Hardware	As Required by Exper. Prel. Operational Requirements Document	Dev. Ctr

* - Obtained from the Apollo Program

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-1

		RESPONSIBILITY	DATE
Orbital Workshop			
1.	Complete Critical Design Review Team Meeting	MSFC	14 Sept 1970 (Compl)
2.	Vibroacoustic Test Facility Ready at JSC	JSC	5 Jan 1971 (Compl)
3.	Del. Dynamics Test Article to MSC for Vibroacoustics Test	MSFC	6 Jan 1971 (Compl)
4.	Complete Component Qualification/Verification Program	MSFC	15 Apr 1973
5.	Complete Delivery of Trainers to JSC	MSFC	12 Oct 1971 (Compl)
6.	Complete Configuration Inspection (Government Acceptance)	MSFC	8 Sept 1972 (Compl)
7.	GSE Available for Delivery to KSC	MSFC	8 Sept 1972 (Compl)
8.	Flight Unit Available for Delivery to KSC	MSFC	8 Sept 1972 (Compl)
9.	Flight Unit Delivered On-Dock KSC	MSFC	22 Sept 1972 (Compl)
10.	Flight Unit KSC Need Date	KSC	25 Sept 1972 (Compl)
Multiple Docking Adapter			
1.	Complete Critical Design Review Team Meeting	MSFC	10 Aug 1970 (Compl)
2.	Complete Structural Test Unit Qualifications Test	MSFC	1 Mar 1971 (Compl)
3.	Complete Component Qualification/Verification Program	MSFC	15 Mar 1972 (Compl)
4.	Complete Delivery of Trainers to JSC	MSFC	8 Oct 1971 (Compl)
5.	Complete Configuration Inspection	MSFC	20 Dec 1971 (Compl)

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-1

	RESPONSIBILITY	DATE
6. Deliver Flight Unit to MDAC-ED	MSFC	22 Dec 1971 (Compl)
7. GSE Available for Delivery to KSC	MSFC	6 Oct 1972 (Compl)
Airlock		
1. Complete Critical Design Review Team Meeting	MSFC	10 Aug 1970 (Compl)
2. Complete Configuration Inspection	MSFC	29 Sept 1972 (Compl)
3. Complete Delivery of Trainers to JSC	MSFC	15 Oct 1971 (Compl)
4. Ready for Integration with MDA	MSFC	15 Dec 1971 (Compl)
5. Complete Component Qualification/Verification Program	MSFC	1 Sept 1972 (Compl)
6. GSE Available for Delivery to KSC	MSFC	6 Oct 1972 (Compl)
Airlock/Multiple Docking Adapter		
1. Flight AM/MDA Available for Delivery to KSC	MSFC	6 Oct 1972 (Compl)
2. Flight AM/MDA KSC Need Date	KSC	9 Oct 1972 (Compl)
Payload Shroud		
1. Complete Critical Design Review Team Meeting	MSFC	10 Aug 1970 (Compl)
2. Complete Configuration Inspection	MSFC	24 Sept 1971 (Compl)
3. Flight Unit Available for Delivery to KSC	MSFC	21 Jul 1972 (Compl)
4. Flight Unit Delivered On-Dock KSC	MSFC	22 Sept 1972 (Compl)
5. Flight Unit KSC Need Date	KSC	2 Jan 1973 (Compl)
ATM System		
1. Complete Critical Design Review Team Meeting	MSFC	15 May 1970 (Compl)

SKYLAB CONTROLLED MILESTONES
FLIGHT SL-1

	RESPONSIBILITY	DATE
2. ATM C/O and Support Facilities Operational at JSC	MSFC/JSC	15 May 1970 (Compl)
3. Deliver ATM Thermal Unit to JSC for Thermal/Vacuum Test	MSFC	1 Jun 1970 (Compl)
4. Deliver Control and Display Prototype Unit to MSFC	MSFC	31 Mar 1971 (Compl)
5. ATM C/O and Support Facilities Operational at MSFC	MSFC	1 Apr 1971 (Compl)
6. Complete Delivery of ATM Flight Experiments to MSFC	MSFC	15 Aug 1971 (Compl)
7. Complete Delivery of Trainers to JSC	MSFC	8 Oct 1971 (Compl)
8. Complete Component Qualification/Verification Program	MSFC	28 Feb 1973 (Compl)
9. Complete Prototype Thermal/Vacuum Test	MSFC	15 Dec 1971 (Compl)
10. Deliver Controls and Display Flight Unit to MDAC-ED	MSFC	18 Aug 1972 (Compl)
11. Complete Configuration Inspection	MSFC	22 Jun 1972 (Compl)
12. Deliver ATM Flight Unit to JSC for Thermal/Vacuum Test	MSFC	23 Jun 1972 (Compl)
13. ESE/GSE Available for Delivery to KSC	MSFC	22 Sept 1972 (Compl)
14. Flight Unit Available for Delivery to KSC	MSFC	22 Sept 1972 (Compl)
15. Flight Unit KSC Need Date	KSC	22 Sept 1972 (Compl)
16. Complete Delivery of Digital Computer Final Software	MSFC	26 Jan 1973 (Compl)
17. Final Software KSC Need Date	KSC	7 Mar 1973
Experiments		
1. Complete Qualification For Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedule Experiments Summary

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-1

	RESPONSIBILITY	DATE
2. Delivery of Flight Units for Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedule Experiments Summary
Other		
1. Complete Cluster Systems Design Review	MSFC	Dec 1969 (Compl)
2. Complete Delivery of MDA, AM, PS, ATM, DA, and FAS to MSC for Payload Assembly Vibroacoustics Test	MSFC	6 Jul 1971 Compl)
3. Complete Payload Assembly V/A Test at JSC	MSFC	15 Dec 1971 (Compl)
Launch Vehicle		
1. Complete Stage pre-delivery Turnover Reviews	MSFC	25 Oct 1972 (Compl)
2. Deliver S-IC-13 to KSC	MSFC	26 Jul 1972 (Compl)
3. S-IC-13 KSC Need Date	KSC	26 Jul 1972 (Compl)
4. Deliver S-IU-13 to KSC	MSFC	26 Oct 1972 (Compl)
5. S-IU-13 KSC Need Date	KSC	27 Oct 1972 (Compl)
6. Deliver LV Digital Computer Final Software to KSC	MSFC	6 Mar 1973
7. LVDC Final Software KSC Need Date	KSC	7 Mar 1973
KSC Operations		
1. ATM Clean Room Operational Ready	KSC	1 Oct 1972 (Compl)

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-1

	RESPONSIBILITY	DATE
2. AM/MDA West Integrated Test Stand Operational Ready	KSC	22 Oct 1972 (Compl)
3. Launch Complex 39, PAD A, Operational Ready	KSC	12 Mar 1973
4. Complete Flight Readiness Review	KSC	19-20 Apr 1973
5. SL-1 Space Vehicle Ready for Launch	KSC	14 May 1973 (Planning Only)
SL-1/SL-2 Design Certification Reviews		
1. Launch Vehicles 513 and 206 (Delta)	HQ	7-8 Jun 1972 (Compl)
2. CSM/MSC Experiments	HQ	10-11 Aug 1972 (Compl)
3. Mission Operations	HQ	15 Sept 1972 (Compl)
4. MSFC Modules & Experiments	HQ	2-3 Oct 1972 (Compl
5. Cluster Systems	HQ	19 Oct 1972 (Compl)
6. Launch Complex/	HQ	19 Jan 1973 (Compl)

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-2

	RESPONSIBILITY	DATE
Spacecraft		
1. Complete Dynamic/Static Test Program	JSC	1 Jul 1971 (Compl)
2. Complete SM-RCS Systems Propellant Test Program	JSC	1 Jul 1971 (Compl)
3. Complete Configuration Inspection (Phase III CARR)	JSC	23 Mar 1972 (Compl)
4. G&N Final Flight Software Program Delivery to KSC	JSC	27 Jan 1972 (Compl)
5. G&N Final Flight Software KSC Need Date	KSC	14 Aug 1972 (Compl)
6. Complete Component Qualification/Verification Program	JSC	23 Oct 1972 (Compl)
7. CSM-116 Delivery to KSC	JSC	18 Jul 1972 (Compl)
8. CSM-116 KSC Need Date	KSC	20 Jul 1972 (Compl)
9. Complete Delivery of GSE to KSC	JSC	18 Jul 1972 (Compl)
Launch Vehicle		
1. Complete Stage Pre-Delivery Turnover Reviews	MSFC	22 Aug 1972 (Compl)
2. Deliver S-IB-206 to KSC	MSFC	22 Aug 1972 (Compl)
3. S-IB-206 KSC Need Date	KSC	22 Aug 1972 (Compl)
4. Deliver S-IU-206 to KSC	MSFC	24 Aug 1972 (Compl)
5. S-IU-206 KSC Need Date	KSC	24 Aug 1972 (Compl)

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-2

	RESPONSIBILITY	DATE
6. Deliver LV Digital Computer Final Software to KSC	MSFC	14 Feb 1973 (Compl)
7. LVDC Final Software KSC Need Date	KSC	14 Feb 1973 (Compl)
Experiments		
1. Delivery of Flight Units for Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedules Experiments Summary
KSC Operations		
1. Launch Complex 39, PAD B, Operational Ready	KSC	15 Dec 1972 (Compl)
2. Complete Flight Readiness Review	KSC	19-20 Apr 1973
3. SL-2 Space Vehicle Ready for Launch	KSC	15 May 1973 (Planning Only)
Other		
1. Design Certification Reviews (See SL-1/SL-2 DCR's listed under SL-1, page 5)	HQ	See SL-1/SL-2 dates, Page 5

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-3

		RESPONSIBILITY	DATE
Spacecraft			
1.	G&N Final Flight Software Program Delivery to KSC	JSC	25 Feb 1973 (Compl)
2.	G&N Flight Software KSC Need Date	KSC	29 Jan 1973 (Compl)
3.	Complete Configuration Inspection (Phase III CARR)	JSC	21 Sept 1972 (Compl)
4.	CSM-117 Available for Delivery to KSC	JSC	1 Dec 1972 (Compl)
5.	CSM-117 KSC Need Date	KSC	16 Jan 1973 (Compl)
6.	CSM Rescue Configuration Kit Available for Delivery to KSC	JSC	1 Apr 1973
7.	CSM Rescue Configuration Kit KSC Need Date	KSC	1 Apr 1973
Launch Vehicle			
1.	Complete Stage Predelivery Turnover Reviews	MSFC	1 Apr 1973
2.	Deliver S-IB-207 to KSC	MSFC	5 Apr 1973
3.	S-IB-207 KSC Need Date	KSC	12 Apr 1973
4.	Deliver S-IU-207 to KSC	MSFC	12 Apr 1973
5.	S-IU-207 KSC Need Date	KSC	3 Apr 1973
6.	Deliver LV Digital Computer Final Software to KSC	MSFC	7 May 1973
7.	LVDC Final Software KSC Need Date	KSC	7 May 1973

SKYLAB CONTROLLED MILESTONES
FLIGHT SL-3

	RESPONSIBILITY	DATE
Experiments		
1. Delivery of Flight Units for Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedules Experiments Summary
KSC Operations		
1. Complete Flight Readiness Review	KSC	Under Review
2. SL-3 Space Vehicle Ready for Launch	KSC	8 Aug 1973 (Planning only)

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-4

		RESPONSIBILITY	DATE
Spacecraft			
1.	G&N Final Flight Software Program Delivery to KSC	JSC	7 Mar 1972 (Compl)
2.	G&N Flight Software KSC Need Date	KSC	14 May 1973
3.	Complete Configuration Inspection (Phase III CARR)	JSC	16 Nov 1972 (Compl)
4.	CSM-118 Available for Delivery to KSC	JSC	10 Feb 1973 (Compl)
5.	CSM-118 Required on Dock at KSC	KSC	12 Feb 1973 (Compl
Launch Vehicle			
1.	Complete Stage Predelivery Turnover Reviews	MSFC	1 Jun 1973
2.	Deliver S-IB-208 to KSC	MSFC	11 Jun 1973
3.	S-IB-208 KSC Need Date	KSC	11 Jun 1973
4.	Deliver S-IU-208 to KSC	MSFC	19 Jun 1973
5.	S-IU-208 KSC Need Date	KSC	19 Jul 1973
6.	Deliver LV Digital Computer Final Software to KSC	MSFC	8 Aug 1973
7.	LVDC Software KSC Need Date	KSC	8 Aug 1973

SKYLAB CONTROLLED MILESTONES

FLIGHT SL-4

	RESPONSIBILITY	DATE
Experiments		
1. Delivery of Flight Units for Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedules Experiments Summary
KSC Operations		
1. Complete Flight Readiness Review	KSC	Under Review
2. SL-4 Space Vehicle Ready for Launch	KSC	9 Nov 1973 (Planning only)

SKYLAB CONTROLLED MILESTONES

FLIGHT BACKUP/RESCUE

		RESPONSIBILITY	DATE
Spacecraft			
1.	G&N Final Flight Software Program Delivery to KSC	JSC	4 Sept 1973
2.	G&N Flight Software KSC Need Date	KSC	4 Sept 1973
3.	Complete Configuration Inspection (Phase III CARR)	JSC	8 Feb 1973 (Comp)
4.	CSM-119 Available for Delivery to KSC	JSC	4 May 1973
5.	CSM-119 Required On-Dock at KSC	KSC	7 May 1973
Launch Vehicle			
1.	Complete Stage Predelivery Turnover Reviews	MSFC	19 Aug 1973
2.	Deliver S-IB-209 to KSC	MSFC	6 Sept 1973
3.	S-IB-209 KSC Need Date	KSC	6 Sept 1973
4.	Deliver S-IU-209 to KSC	MSFC	24 Oct 1973
5.	S-IU-209 KSC Need Date	KSC	24 Oct 1973
6.	Deliver LV Digital Computer Final Software to KSC	MSFC	7 Nov 1973
7.	LVDC Software KSC Need Date	KSC	7 Nov 1973

SKYLAB CONTROLLED MILESTONES

FLIGHT BACKUP/RESCUE

	RESPONSIBILITY	DATE
Experiments		
1. Delivery of Flight Units for Each Experiment	Dev. Ctr.	As Scheduled in Skylab Level I Schedules Experiments Summary
KSC Operations		
1. Complete Flight Readiness Review	KSC	Under Review
2. Rescue Space Vehicle Ready for Launch	KSC	Under Review

SKYLAB CONTROLLED MILESTONES

BACKUP SATURN V/WORKSHOP HARDWARE

	RESPONSIBILITY	DATE
Backup Workshop Modules		
1. Deliver Backup MDA to MDAC-E	MSFC	25 Oct 1972 (Compl)
2. Complete Backup PS Fab & Store	MSFC	24 Nov 1972 (Compl)
3. Complete Backup OWS Fab & Assembly	MSFC	31 Mar 1973
4. Complete AM/MDA BU Assembly and SL-1 Confidence Testing	MSFC	30 Apr 1973
5. Complete Backup ATM Refurbishment	MSFC	30 Apr 1973
Backup Launch Vehicle		
1. S-IC-515 Available for Delivery to KSC (In Standby at MAF)	MSFC	6 Jun 1973
2. S-IC-515 KSC Need Date (If Mission is Approved)	KSC	6 Jun 1973
3. S-IU-515 Available for Delivery to KSC (In Standby at IBM, Huntsville)	MSFC	14 Aug 1973
4. S-IU-515 KSC Need Date (If Mission is Approved)	KSC	14 Aug 1973
5. Deliver LVDC Final Software to KSC	MSFC	TBD
6. LVDC Final Software KSC Need Date	KSC	TBD