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OFFICE OF MANNED SPACE FLIGHT

INSTRUCTION

PROGRAM SCHEDULING MANUAL

NASA and NASA Contractors Only

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SEPTEMBER, 1963

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

MANNED SPACE FLIGHT

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Manned Space Flight
PROGRAM SCHEDULING MANUAL

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MANNED SPACE FLIGHT

PROGRAM SCHEDULING MANUAL

SECTION I

Program Scheduling Policy, Scope and Responsibility

(M-I M 9330.006)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OFFICE OF MANNED SPACE FLIGHT

INSTRUCTION	M-I M 9330.006 (Topic)	Date SEP 16, 1963

From: Deputy Director of Manned Space Flight (Programs)

To: Distribution

Subject: Program Scheduling Policy, Scope and Responsibility

OMSF
Program Scheduling Manual
Section I

1. PURPOSE

The purpose of this Instruction is to establish the operating policy, scope of effort, and assignment of responsibilities as required for scheduling and review of OMSF Programs.

2. CANCELLATION

This Instruction and associated Instructions M-I M 9330.007 and .008 supersede OMSF Program Scheduling Procedure of April 19, 1962; M-I M 9330.002 of December 5, 1962; and supporting memorandums and correspondence M-M M 9330.003, .004, .005, .008, and .011; and M-C P 9330.057

3. POLICY

To achieve the established missions and objectives of the Manned Space Flight Program, it is essential that all program effort be undertaken on the basis of approved schedules; further, that there be a continuing review process by which potential problems can be identified, assessed, and channeled to the proper decision-making level. To this end, an OMSF Program Schedule Document will be maintained to reflect the currently approved schedules and the status of effort against these schedules. In addition, regularly scheduled Program Reviews will be held to evaluate progress and

to determine corrective actions, as required. Operating principles for the scheduling and review procedure will be as follows:

a. A single system providing uniformity in format, presentation, structure, and content will be employed in all program areas. The same format will be used for the documentation of schedule elements and for the presentation of schedule status through regularly scheduled Program Reviews.

b. The scheduled effort will be structured, documented, and maintained on a basis that will insure clear lines of accountability for program status and for the control of all schedule changes and actions. In addition, it will provide a means of measuring progress in terms of milestones, funding, cost, and manpower.

c. The system will reflect the planning and analysis at operating levels using such available management techniques as PERT, and therefore, is not intended as a substitute for those techniques.

4. SCOPE AND PROCEDURES

a. In view of the number and complexity of actions required to achieve the above objectives, detailed guidelines and procedures for Manned Space Flight scheduling and review have been prepared as three Instructions (including this Instruction) each of which constitutes a Section of the Manned Space Flight Program Scheduling Manual.

(1) Section I, Program Scheduling Policy, Scope, and Responsibility (M-I M 9330.006).

(2) Section II, Program Scheduling Structure and Format (M-I M 9330.007).

(3) Section III, Program Status and Review (M-I M 9330.008).

b. As indicated under Policy, paragraph 3., above, the end product of this scheduling effort, and the basis for program activity, is the Manned Space Flight Program Schedule Document.

This Document will be distributed on the basis of an approved Master Distribution List as established and maintained under separate Instruction M-I M 9330.010A.

5. RESPONSIBILITIES

a. All OMSF Directors and Field Center Directors are responsible for implementation of the scheduling and review procedure within assigned program areas. Responsibility for overall management of the scheduling and review process, as well as for analyses of schedules and related status information for impact on total OMSF resources, is assigned to the Director of Program Review and Resources Management (Code MP). Individual responsibilities for the various schedule elements will be assigned on the basis of Schedule and Status Responsibilities as defined below:

(1) Schedule Responsibility is assigned to the individual responsible for initial approval of schedules and for subsequent approval of all schedule changes. This responsibility implies accountability for insuring that the scheduled effort is consistent with, and in support of, total program objectives including coordination with the scheduled activity of other Centers and Offices. Responsibility will include the approval of schedule changes as indicated above, except when the change may affect a scheduled launch date, mission profile, or project scope and objectives, in which case the change will be referred to the Deputy Associate Administrator for Manned Space Flight (AAD-2).

(2) Status Responsibility is assigned to the individual most directly responsible for accomplishment of scheduled effort within the time required and the funds allotted. This responsibility includes accountability for progress reports, projections and, when schedule slippage threatens, assurances that corrective actions are taken, alternatives have been examined, recovery plans prepared, etc.

b. Schedule and Status Responsibility will be assigned by the schedule levels defined in Section II of the Program Scheduling Manual. Schedule Responsibility for Levels 2 & A

will be assigned to Center Directors for projects or project elements that are managed by the Field Centers and to OMSF Directors for effort that is managed directly from OMSF. Further delegation of this responsibility will be as follows:

(1) The cognizant Director will assign Status Responsibility for schedules under his direction. Normally, this assignment is expected to be made to project managers and through them to system and subsystem managers.

(2) The cognizant Director may either retain Schedule Responsibility for Levels 3, 4, and B, or reassign this responsibility to the manager assigned Status Responsibility at Level 2.

c. Schedules at Level 1 will not fall specifically within the responsibility established above since these schedule represent a summarization of selected schedule elements at lower levels. However, all launch dates will require approval by the Deputy Associate Administrator for Manned Space Flight (AAD-2), as will any proposed schedule change which may affect the established launch date.

6. SCHEDULE ACCEPTANCE

All schedule and schedule change approvals, as well as the establishment of predicted completion dates and the planned phasing of resources resulting from the assignment of responsibilities established under paragraphs 5.a., and b., above, will be subject to review and acceptance by the Deputy Associate Administrator (AAD-2), and/or the cognizant Deputy Director, OMSF. Unless specific exception is expressed, all such scheduling actions will be considered to be in effect.

George M Low 9-16-63

George M. Low Jr

MANNED SPACE FLIGHT

PROGRAM SCHEDULING MANUAL

SECTION II

Program Scheduling Structure and Format

(M-I M 9330.007)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OFFICE OF MANNED SPACE FLIGHT

INSTRUCTION	M-I M 9330.007 (Topic)	Date SEP 16, 1963

From: Deputy Director of Manned Space Flight (Programs)

To: Distribution

Subject: Program Scheduling Structure and Format

OMSF
Program Scheduling Manual
Section II

1. PURPOSE

The purpose of this Instruction is to establish the structure and format for documentation and review of Manned Space Flight Program Schedules.

2. CANCELLATION

This Instruction and associated Instructions M-I M 9330.006 and .008 supersede OMSF Program Scheduling Procedure of April 19, 1962; M-I M 9330.002 of December 5, 1962; and supporting memorandums and correspondence M-M M 9330.003, .004, .005, .008, and .011; and M-C P 9330.057.

3. BACKGROUND

As described in Section I of the Program Scheduling Manual, the Program Schedule Document is the official statement of Manned Space Flight program status and is the basis for review and evaluation of the total program effort. The structure and format of this document is directed towards the identification of program effort with established management and contractor levels and towards the review of that effort on the basis of milestones, funding, cost, and manpower information.

4. SCHEDULE STRUCTURE

Schedules for the total Manned Space Flight Program will be grouped and maintained under Levels 1, 2, 3, and 4 for Research

and Development with supporting Levels A and B for Construction of Facilities. The specific types of schedules to be included within each Level will be as outlined in Enclosure (1) and as further described in the following paragraphs. Although the schedule structure is oriented primarily to hardware development, the same basic logic will be applied in preparing schedules for the non-hardware areas.

a. Level 1, Overall Manned Space Flight Program: A Master Manned Space Flight Launch Schedule will be maintained showing the scheduled launches for each launch series, e.g., Gemini, Apollo/Saturn I, Apollo/Saturn I-B, and Apollo/Saturn V. (Each launch will be identified as to mission and launch vehicle/spacecraft combination.) In support of these Master Schedules, separate detailed schedules will be prepared for selected launches. The selection will be determined by the current nearness of time to launch, and/or the significance of the launch to the development program, e.g., first flight in a series, first of a change block, first manned flight, etc. Included in each of these schedules will be milestones indicating the availability of the vehicle and spacecraft, the supporting launch capability, Mission Control Center operational availability, tracking and data interfaces, etc. Funding schedules will be included to permit evaluation of the total program accomplishment as compared to available resources.

b. Level 2, Projects: A development plan summarizing and integrating the total development effort and, as applicable, a master delivery schedule will be maintained for each project established at Level 2. Although, in general, projects at this level will correspond to the established NASA projects, variation in structure may be required to achieve meaningful scheduling information and to establish the appropriate scheduling accountability. As necessary to amplify the status of selected launches shown at Level 1, and/or to meet other critical hardware or development requirements, further detailed delivery schedules will be prepared showing major milestones leading to the required availability dates. For each project, a supporting Funding Schedule will be prepared.

c. Level 3, Primary Systems: Development and delivery schedules, as described under Level 2, will be prepared for each Primary System established at Level 3. Since, generally, each Primary System can be identified with a responsible Center, Contractor, or Agency (e.g., spacecraft modules, vehicle stages, etc.), supporting resources schedules will be shown in terms of manpower and accrued cost (exception to this rule for accrued cost will apply when delivery or development of the item is handled directly by a Field Center rather than by a contractor). In those special cases where a Center and a contractor share responsibility for an item, such as the S-I Stage, the identification of responsibility should be included in the development or delivery schedule and separate manpower data should be shown for each organization. In the case of the S-I, the delivery schedule milestones should be labeled MSFC or Chrysler, as appropriate; development schedules should be labeled MSFC and Chrysler. Only the Chrysler cost data would be provided since MSFC is not on a cost accrual basis.

d. Level 4, Subordinate Systems: The same basic ground rules established for Primary Systems at Level 3 will apply to Subordinate Systems at Level 4. Cost and manpower for subsystems under sub-contracts, as well as prime contracts, will be included unless practical considerations dictate otherwise.

e. Level A, Facilities: A separate schedule will be prepared for each Location with milestones indicating the operational readiness date, and other key requirement dates, for each project at that Location. Locations by definition are: LOC, MSC, MSFC, Michoud, MTF, and Various Locations (R&D and CofF funded). For selected projects involving major sub-project elements, e.g., Launch Complexes 37 and 39, the operational availability date for each sub-project element will also be shown as a sub-heading on the same basic Level A schedule. As necessary to cover the inter-dependency between sub-project elements and to relate these elements to specific development and launch requirements, separate development schedules will be prepared and included as part of the Level A structure. A supporting Funding Schedule will be prepared for each Level A Facility Schedule.

f. Level B, Facilities: For each project or sub-project element identified in Level A, a separate schedule will be prepared showing milestones leading to the required operational readiness date as established at Level A. Exception to this requirement may be made in the general support areas where the nature of the project does not contribute directly to program objectives (e.g., guard house, parking areas, etc.). In such cases, schedules would be covered only in summary form at Level A. These exceptions would be reviewed on a case-by-case basis. Supporting development schedules as described for Level A will also be included in Level B, as applicable.

5. SCHEDULE DOCUMENTATION AND IDENTIFICATION

All schedules will be identified and documented in accordance with a standard format as indicated in Enclosure (2).

a. Schedule Identification:

(1) At the top and center of each format, the appropriate title, level number, schedule number and, where applicable, the project, the contractor, (prime, associate, or sub-contractor) and the contract number will be entered.

(2) The contract number will be shown in parentheses immediately following the name of the contractor. Where the name of a contractor does not apply, the words "Not Applicable" will be entered.

(3) The schedule number will be assigned and entered on the basis of a master coding system as described in Enclosure (3).

(4) When more than one page is required for a given schedule, a standard "Page ___ of ___ Pages" entry will be made in the lower-right corner of the schedule.

b. Schedule Documentation:

(1) In the upper-right corner of each schedule will be entered the printed names and the signatures of the individuals

assigned Schedule and Status Responsibility as established under Section I (M-I M 9330.006) of the Program Scheduling Manual. The date of original schedule approval, as represented by the placement of these signatures, will be entered on the first line in the upper-right corner of each schedule and will remain on the schedule as a historical reference point for subsequent submissions.

(2) The second line in the upper-right corner is reserved for documentation of all changes subsequent to the initial approval. For purposes of this Instruction, a schedule change will be defined as any action involving redefinition of terms, alteration to scope, or changes to the scheduled completion dates and the planned phasing of resources as described in paragraph 6., below. Changes of this type constitute a retirement of old schedules and, as such, will take place only under special circumstances as described under paragraph 7. In such cases, the new approval date, the change number (1, 2, 3, etc.) and the signed initials of the approving official will be entered in the spaces provided. The initials appearing in this space will always be those of the official or acting official that has been assigned Schedule Responsibility.

(3) The third line in the upper-right corner establishes the effective date of the status information being reported for each schedule submission. The effective date of status will be the cut-off date for actual performance, (e.g., obligations as of the end of the month) or the date of the last schedule change approval, whichever is later. Immediately following this date, on the same line, will be entered the signed initials of the individual assigned Status Responsibility. These initials will constitute verification of the status information presented. Initials entered in this space will be those of the Manager or Acting Manager assigned Status Responsibility.

(4) In addition to the signatures and initials of responsible individuals, narrative documentation of scheduling actions will be entered in the "Notes" portion of the schedule

as provided for under paragraph 5.c., below. Explanations will be required when a schedule is retired, when a change in the completion date of a milestone is predicted by the appearance of an "X" diamond; or when any other change or alteration of the schedule is made that would not normally constitute a retirement of the schedule (e.g., format changes, corrections, etc.). Planned deletion of a milestone will be indicated by an asterisk (*) and planned addition of a new milestone will be indicated by a double asterisk (**) at the end of the milestone title. All schedules that involve any of these conditions are subject to review and acceptance by the Office of Manned Space Flight. To facilitate this review, schedules that involve one or more of these conditions will be annotated on the index page of each schedule submission. If no exception is expressed by the Office of Manned Space Flight, all changes, placement of diamond symbols, and retirement of schedules will be considered in effect. Where retirement of a schedule is involved, both the new and old schedule will be made a part of a permanent record in a Central File to be maintained by the Office of Manned Space Flight.

c. Schedule Notes: At the bottom of each schedule format, space is provided for explanatory notes. In addition to documenting schedule retirements, changes, or placement of "X" diamonds, as described in paragraph 5.b.(4), above, explanations will be entered in this space when an item is behind schedule, or when a major re-phasing of cost, funding, or manpower is estimated. In addition to these minimum requirements, notes will be used to insure general clarity and understanding of all status information. To identify these notes, the words "Note 1, Note 2, etc.", will appear on the schedule immediately adjacent to the item being explained. Where the note applies to a milestone, the entry will be made at the end of the milestone title. As necessary, notes will be expanded on supporting narrative formats as described in paragraph 10.

6. SCHEDULE SYMBOLS AND CURVES (ENCLOSURE (4))

To insure uniformity in the presentation of all schedule information, standard arrow, diamond, and time-bar symbols will be

used for milestones, and standard graph curves and bars will be used for funding, cost, and manpower as shown in Enclosure (4). A legend of these symbols will appear in each schedule volume immediately following the index page. Arrow symbols, time bars, and broken-line curves (or diagonal-line bars) represent the scheduled effort and can only be changed by the individual assigned Schedule Responsibility. Similarly, diamond symbols, solid and dotted curves (or bars) as well as filled-in arrows and portions of time bars, are indices of the current status and, therefore, must be entered and verified by the individual assigned Status Responsibility. Specific guidelines for the use of these symbols are as follows:

a. Report Date Symbol: The Report Date will be indicated by a vertical broken line. This line will be placed on the time scale to reflect the same "Status as of..." date as indicated in the upper-right corner of the standard schedule format.

b. Arrow Symbols: The schedule completion date for all milestones will be shown on the time scale by an open arrow (⇧); the completed event will be shown by a filled-in arrow (⇧).

c. Diamond Symbols:

(1) To indicate a predicted change in the completion of a milestone (either earlier or later) which was not shown on the previous report, a diamond symbol enclosing an "X" (⊠) will be used. This "X" diamond also indicates that the scheduling action is proposed and is still subject to review and acceptance by the Deputy Associate Administrator (AAD-2), or the cognizant Deputy Director, OMSF. If exception to the diamond is expressed, the diamond will either be removed, placed in the margin as described under paragraph 6. c. (3), below, or retained on the time scale with the "X" still enclosed.

(2) To indicate on subsequent reports that a predicted change has been reviewed and accepted by OMSF, an open diamond (◇) will be shown. When an open diamond appears on the time scale and a different completion date is predicted for the current month, both predictions will be

shown; however, no more than two diamonds will be shown at any one time, i.e., the prediction as shown on the previous reports and the current prediction, if different (See Enclosure (4), Item O). A predicted change on the time scale indicating slippage will appear only after full coordination has been completed and where it is determined by the responsible official that, within existing limitations, no practical alternative exists.

(3) The "X" diamond may also be placed in the left margin opposite the applicable milestone to indicate that a predicted change (earlier or later) is anticipated, but has not been fully assessed. In those instances where a potential slippage is anticipated, the diamond in the margin will be used to "flag" the milestone as being in danger and to indicate that a detailed and coordinated analysis is in process. It should be emphasized that, in these cases, the diamond indicates a potential predicted change and, therefore, should not be used to highlight current problems where recovery of the schedule is anticipated. Similarly, diamonds used in this manner should indicate a potential change with reference to final completion of the milestone, and not to the intermediate steps which may not affect the final completion. Diamonds in the margin will appear only as "X" diamonds.

d. Time Bars:

(1) Time bars will be used in conjunction with the above described arrow and diamond symbols to display progress against the scheduled completion, as well as to indicate the start and end dates. The apex of the arrow diamond symbols will designate the date on the time scale. When used in conjunction with the time bar, the apex of the arrow or diamond and the end of the bar will coincide as shown in the illustrations of Enclosure (4). A "slip" in the initiation date will be indicated by a dotted portion at the beginning of the bar; an early iniation will be shown by adding an extension to the bar

(Enclosure (4), Item F). Progress will be shown by filling in the bar, using the report date as the point of reference (Enclosure 4, Item G). Activities behind schedule will be filled in to a point short of the report date; activities ahead of schedule will be filled in beyond the report date. Using the time scale on the schedule as a unit of measure, the amount of open space behind or the amount of filled-in space beyond the report date will be equal to the estimated time that the activity is behind or ahead of schedule as of the report date. (This may or may not result in a change in the predicted completion date.) When unique situations occur that cannot be plotted in this manner, an explanation will be entered in the "Notes" portion of the schedule.

(2) Time bars will be used to show such effort as engineering, fabrication, and testing; also, to summarize status of effort that is being conducted on subsidiary level schedules. In addition, it may be adapted to reflect the status of deliveries, test firings, and other schedule elements where a number of deliveries or completions occur within a short period of time (Enclosure (4), Item H). In this latter area, the appropriate numerical data should be entered on the time scale, accompanied by a filled-in bar corresponding to the actual deliveries, test firings, etc.

e. Symbol Inter-Relationship: As necessary to show the interdependency between milestones, vertical lines connecting time bars will be used to show that the initiation or completion of one milestone is contingent upon the other (Enclosure (4), Item I).

f. Graph Curves: Broken-line, solid-line, and dotted-line curves will be plotted to reflect the time-phasing of obligations, and accrued cost, as required for Funding and Cost Schedules (Enclosure (4), Item J). All funding and cost curves will be plotted as cumulative figures on the line indicating the end of the month or year, as applicable.

(1) The broken-line curve reflects the approved plan and will be modified only where there is an authorized increase or decrease in the total scope of effort for the current year or for individual years in the projected plan. The plan of obligations for projected years will reflect figures as contained in the NASA Project Approval Document (PAD) or guidelines provided by OMSF; the total obligations for the current fiscal year will reflect figures as contained in the OMSF Authorization (M-A) document. In view of these conditions, it is recognized that the signature of the Director assigned Schedule Responsibility applies only to the planned phasing of resources within the current year. Estimated requirements greater or less than the established figures may be indicated through the use of dotted lines as covered under paragraph 6.f.(3), below. When a change in plan has been approved, the old schedules will be retired and an entirely new planned curve will be plotted. The revised plan curve will be plotted as a continuation of the actual performance solid-line curve. Generally, for the initial appearance of this revised plan, only the actual and planned curves will appear since it is assumed that the new plan and the current estimate are one and the same.

(2) The solid-line curve represents actual obligations or accrued cost, and will reflect status through the end of the month preceding each schedule submission. To the extent that formal reports from contractors and official records are not available in time to meet schedule submission requirements, information should be obtained informally as a basis for plotting actual figures. Any adjustment required for these figures, based on later reports, will be reflected in the following month's submission.

(3) The dotted-line curve represents a projection of estimated performance and/or requirements. These projected estimates will reflect the judgment of the responsible manager, and as such, may or may not agree

with estimates submitted by the contractor. In all instances, the dotted-line is a continuation of the actual performance (solid-line curve) to show re-phasing of accomplishment to achieve the established plan or to indicate an estimated adjustment to the total requirement.

g. Graph Bars: Diagonal-line, solid, and dotted bars will be plotted to reflect the time-phasing of direct man-hours as required for Manpower Schedules (Enclosure (4), Item J). These data will be shown as "rate" functions (versus cumulative) and will show the relationship between "planned," "actual," and "current estimates".

7. RETIREMENT OF SCHEDULES

To be useful as a basis for review and evaluation of program effort, schedules will retain the original or previously established schedule date or plan for comparison with current performance. For Milestone Schedules, arrow symbols representing the scheduled completion date will be rescheduled only when a major re-orientation of the program effort is required, when reprogramming of resources dictates new operating assumptions, or when the original or previous schedule is no longer meaningful for reference purposes in terms of the current scope or plan of effort. Similarly, planned curves and bars for Funding, Cost, and Manpower Schedules will remain the same unless an approved reprogramming of funds has taken place in the case of Funding Schedules, or an over-run or a change in scope has been approved and funded for Cost and Manpower Schedules. All Funding, Cost, and Manpower Schedules will be retired and replaced by new schedules following the Schedule Submission in July of each year.

8. MILESTONE SCHEDULES (ENCLOSURE (5))

The format for Milestone Schedules provides a column on the left of the schedule to list and identify all significant milestones. Each line of the milestone schedule is pre-printed with line numbers to facilitate identification of milestones. Using combinations of standard symbols described in paragraph 6., the

approved schedules and current status will be indicated on the time scale opposite the milestone listed. Milestones for all schedules will appear in a standard sequence consisting of Key Milestones, representing the required completion date and/or key development dates that must be met; Internal Milestones, covering those items that must be accomplished to achieve the Key Milestones; and External Interface Milestones representing items that must be accomplished from other schedules to meet Internal and/or Key Milestone requirements. (General arrangement of these milestone groupings are shown in Enclosure (5)). To facilitate identification of symbols on the schedule, (without reference to a legend) and to insure clarity in the presentation of schedule status, only one open arrow symbol will be entered for each milestone item listed in the left column. Exceptions to this rule may be applied in the Key Milestone and External Interface areas where a sequence of like items may be involved, e.g., launches, deliveries, etc. The same basic ground rules for inclusion of Key Milestones, Internal Milestones, and External Interfaces will apply to facility schedules, as well as to development and delivery schedules. Key Milestones in the facility area will show not only the required operational ready date, but also key development dates that the facility project must meet. This inclusion of key development milestones will apply principally to schedules at Level B.

a. Key Milestones: On the first line immediately below the calendar on each schedule, the controlling or "Key Milestone(s)" will be entered and a heavy line will be drawn across the page to separate this milestone(s) from the basic schedule. On Level A schedules (where several projects are covered) the key milestones will appear immediately following the project title in the left column rather than on the first line below the calendar.

b. Internal Milestones:

(1) Milestones will be selected and arranged in order to insure maximum clarity and understanding of the schedule information. All milestones entered will be consistent with standard definitions and abbreviations

to be published and maintained on a current basis by the Office of Manned Space Flight (Code MPRP).

(2) Milestone titles should be brief, but should adequately describe the action to be completed. For example, a launch milestone should not only identify the launch by number (e.g., SA-5), but should also indicate the mission. To insure maximum legibility of the various status and schedule symbols, any additional information, e.g., exact date of launch, etc., should be shown with the milestone title rather than on the time scale.

(3) The milestones selected at all levels should be significant indicators of technical progress and should be appropriately spaced to permit timely assessment of effort (i.e., long gaps between milestones should be avoided). Administrative milestones that effect development progress will be indicated. Historical milestones may also be included to the extent that they provide continuity to the schedule and are significant to the projected effort. Normally, milestones will be listed on the schedule in chronological order starting with the earliest milestone at the top and working downward in sequence. Variation from this type of listing will apply where necessary to show a separate grouping of related milestones or where unique problems of presentation occur.

(4) As necessary to reflect long-range planning for projects that are not yet approved, selected milestones may be incorporated as a reference point for current activity. These milestones will be grouped together and identified as "Advanced Planning Milestones" as part of the Internal Milestone listing. Since these milestones are primarily for reference purposes, and cover only projects that have not been approved, changes in the placement of these milestones may be made without formal documentation and approval.

c. External Interface Milestones: External Interfaces will be shown as elements at the bottom of the schedule. A heavy

line will be drawn across the page above the first listed external interface and will be labeled "External Interfaces." (The footnote space at the bottom of the schedule will be used as appropriate to explain who controls the external interface.) These interfaces will be defined as constraining milestones where responsibility is outside the scope of responsibility represented by the schedule. Common examples are: facility availability dates; delivery dates of Government Furnished Equipment from other Agencies, or contractors; and support from other NASA Offices and Centers.

9. FUNDING, COST, AND MANPOWER SCHEDULES (ENCLOSURES (6) THROUGH (11)

a. Formats for Funding, Cost, and Manpower Schedules, as shown in Enclosures (6) through (11) provide for time-phasing of obligations, accrued cost, and direct man-hours for the current fiscal year and for the total span of program effort. Each schedule provides for a comparison of actual and currently estimated performance with the approved and documented schedule.

b. In plotting Funding, Cost, and Manpower Schedules, the ordinate should be chosen to insure consistency in format between schedules, using the total space available on each graph. The ordinates should be sub-divided in accordance with uniform standards. Normally, the sub-division should be in increments of 1, 2, or 5 (i.e., 1, 2, 3, 4, 5; 2, 4, 6, 8; 5, 10, 15, 20, etc.), and decimal values thereof (e.g., .1, .2, .3; 100, 200, 300; 500, 1000, 1500, etc.). The number of zeros may be reduced by indicating vertically on the page and to the left of the ordinate that figures are in thousands, millions, or billions. The actual figures for all points on the curves or bars will be tabulated in small type in the space provided immediately below the graph.

c. The graphs for projected years' obligations and accrued cost should start at zero and show projections through completion of the program effort. Any exceptions should be covered under the "Notes" portion of the schedule.

d. At the top center of each schedule, just below the title block, the words: "Obligations," "Accrued Cost," or "Direct Man-Hours" will be entered as appropriate for Funding, Cost, or Manpower Schedules. For Funding Schedules, obligations will include sub-allotments. (Where sub-allotments have been made, the required information on obligations will be obtained from the sub-allottee.) Since the definitions for Accrued Cost and Direct Man-Hours vary between contractors, the data shown on Cost and Manpower Schedules will use the same definition of terms as negotiated in the contract and as reflected in Form 533 submissions.

e. At the bottom of each Funding, Cost, and Manpower Shhedule, space is provided for explanatory notes. Entries will be made in this space whenever a schedule change has been approved; the total current estimate is greater or less than the approved plan; or any major variation occurs between the actual and the planned amounts. Other notations to achieve clarity or understanding of the graphs will be entered as appropriate.

f. For both Cost and Manpower Schedules, provisions are made for indicating the percentage of overtime and number of shifts. Overtime will be shown as an average figure for the report period. Where the number of shifts vary between divisions within the contractor's plant, an average figure may also be used with explanatory footnotes indicating the specific number of shifts involved.

g. Level 1 Schedules: For Level 1, two sets of schedules will be prepared: one covering total R&D Obligations and the other covering total CofF Obligations. Separate schedules will be prepared for the current year and for projected years as shown in Enclosures (6) and (7). In addition to obligations, these schedules will show fund authorizations as covered by Project Approval Documents and a separate curve for current year procurement initiations. Supporting tabulations (Enclosure (8)) will be prepared to provide a breakdown by Project for R&D and a breakdown by Location for CofF.

h. Level 2 Schedules: A Funding Schedule will be prepared for each project established at Level 2 using the format shown in

Enclosure (9). The Funding Schedule will show one set of curves representing the total R&D Obligations and will be accompanied by a Supporting Tabulation (Enclosure (8)), showing a breakdown by system elements.

i. Level 3 Shhedules:

(1) A total Cost Schedule will be prepared for each system contract established at Level 3 using the format shown in Enclosure (10). These schedules will show two sets of curves: one indicating the total accrued cost and the other indicating the procurement and subcontractor portion of that cost.

(2) As a further breakdown of the contractor's total cost, subsidiary cost schedules will be prepared showing two sets of curves: one indicating the total accrued contractor in-house cost and the other indicating the accrued engineering portion of that cost.

(3) Two Manpower Schedules will be prepared using the format shown in Enclosure (11), for each contract: one indicating total Direct Man-Hours and the other indicating the engineering portion of those Man-Hours. Selected schedules for Center manpower will be prepared as specified under paragraph 4. c.

j. Level 4 Schedules: For selected contracts and sub-contracts at Level 4, Cost and Manpower Schedules will be prepared following the same pattern as established for Level 3. (Center effort at this Level will, however, not be required.) The selection of contracts or subcontracts requiring Cost and Manpower Schedules will be determined by the type of effort involved and the significance of the effort in terms of resources scheduling.

k. Level A Schedules:

(1) A Funding Schedule (Enclosure (9)) with Supporting Tabulations (Enclosure (8)) will be prepared for each

CofF Location. The Supporting Tabulation will list all CofF Projects (current year and projected) required in support of the Approved R&D Projects, as well as those which are required for basic operation of the Location (e.g., utilities, roads, etc). New projects, or proposed changes in scope to existing projects, that meet this definition and are planned through the use of reprogramming authority will be included and annotated to indicate the proposed reprogramming action.

(2) Planned, actual, and current estimates of obligations will be those that will take place during the fiscal year regardless of the appropriation year of the funds being obligated. A breakdown should be provided, parenthetically under the total amount for all years in the Supporting Tabulation, to indicate the total amount by fiscal year appropriation. Obligations for projects and sub-project elements that are R&D funded will be entered as non-add items.

L. Level B Schedules: Funding Schedules will not be required for Level B, nor will Cost and Manpower Schedules, since in most instances, CofF projects are performed under fixed-price contracts. Cost and Manpower Schedules will be required, however, in those instances where development is being conducted under a cost-type contract as part of the total facility project.

10. NARRATIVE FORMAT (ENCLOSURE (12))

Although the majority of information at Program Reviews will be presented through the use of the milestone and supporting resources schedules, there will be a need for the display of narrative information. Such information will be presented to summarize milestones accomplished, to list those milestones that have slipped or for which a slip has been predicted, and to highlight any other specific problem area that may have an impact on the approved schedules. The type and arrangement of the narrative will vary; however, a standard heading, identifying the narrative with the appropriate schedule element or area, as

shown in Enclosure (12) will be used. A typical example for the use of the Narrative Format is when a bar graph or a Milestone is only partially filled-in to the current date thus indicating that the item is behind schedule, or a diamond is shown to reflect that a change in completion is predicted. In such cases, a brief statement will be included under "Notes" with additional explanation on the narrative format, as required. When such additional information is required, the supporting narrative will state the problem, the estimated impact, and the actual, planned, or proposed course of action. Narratives should not be lengthy in terms of repeating information that has been previously reported, but should be self-explanatory to the extent that they accurately reflect the status or scheduling condition.

11. SUMMARY SCHEDULES

To show the relationship between schedules, special summaries may be prepared using selected elements from various schedules. However, since they are not part of the basic structure, no schedule or level number will be assigned and the words "Special Summary" will be entered in large letters at the top of the schedule format.

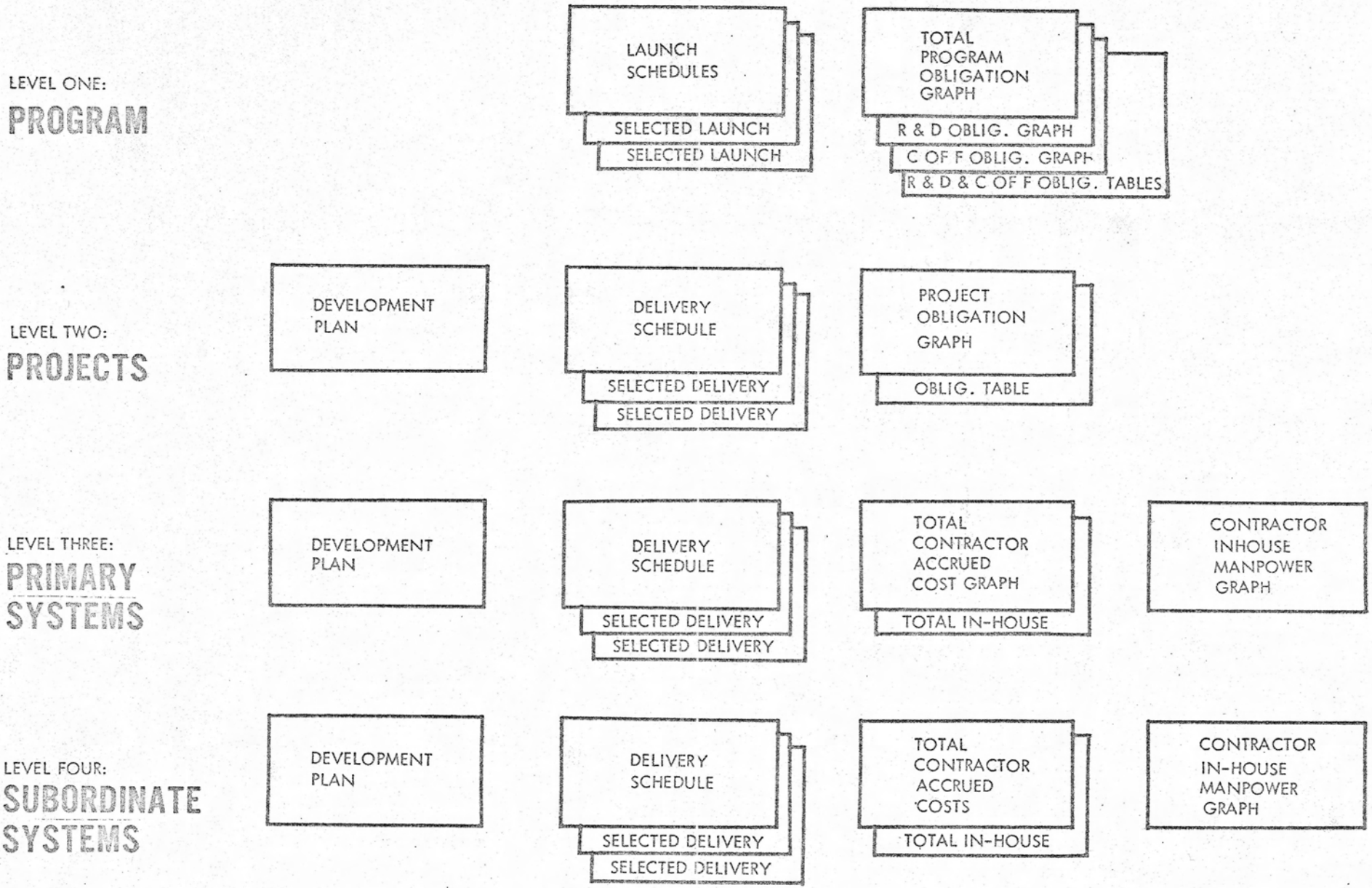
12. SCHEDULE ROAD MAP

To facilitate identification and relationships of schedules within the total structure, a programmatic "Road Map" will be prepared and included in the Program Schedule Document for each project established at Level 2. A typical example is shown in Enclosure (13).

George M Low
9-16-63
George M. Low

Enclosures:
13

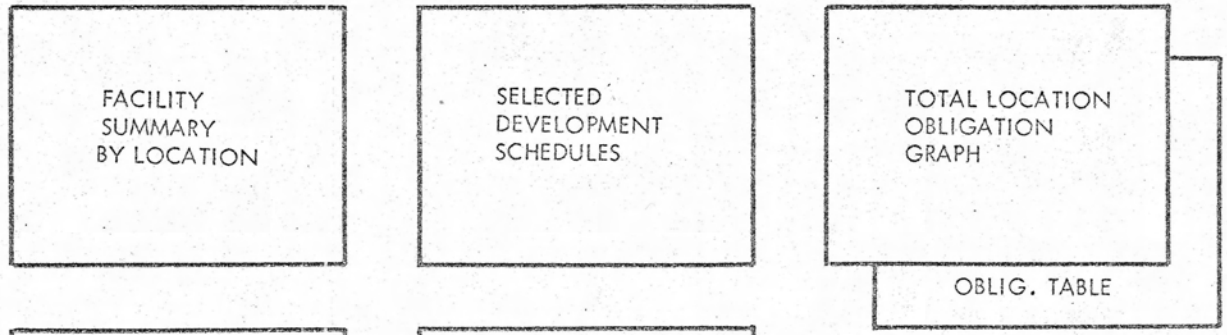
TYPES OF SCHEDULE CHARTS



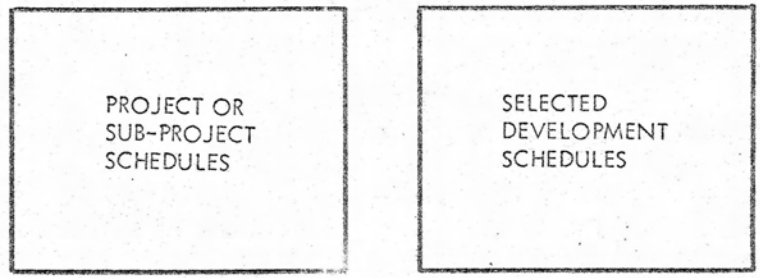
ENCLOSURE (1)

TYPES OF SCHEDULE CHARTS (Contd)

LEVEL A
LOCATION SUMMARY



LEVEL B
PROJECT SUB-PROJECT



ENCLOSURE (1o)

SCHEDULE RESPONSIBILITY _____

STATUS RESPONSIBILITY _____

MANNED SPACE FLIGHT SCHEDULE

LEVEL

CONTRACTOR:

PROJECT:

SCH'D NO:

ORIGINAL SCHEDULE APPROVAL _____ (Date)

LAST SCHEDULE CHANGE _____ (Date) No. (Initials)

STATUS AS OF _____ (Date) (Initials)

BASIC FORM TO BE USED ON ALL SCHEDULES CONTAINED IN THE MANNED SPACE FLIGHT PROGRAM SCHEDULE DOCUMENT. FOR SPECIFIC APPLICATIONS TO MILESTONE, FUNDING, COST, MANPOWER, AND NARRATIVES, SEE ENCLOSURES 5 THROUGH 12.

NOTES

ENCLOSURE (2)

SCHEDULE NUMBERS

R&D

The Schedule Number provides positive identification of the schedule document and is composed of four basic elements of the schedule process, i.e., level, program element, type of schedule, and change number. The following diagram illustrates the applicable digits and the order in which they appear within the schedule number.

X	—	XXXXXX	—	X	/	X
Level		Program Element		Type		Change Number

Level - The Level will be expressed in a single digit, i.e., 1 for Level 1; 2 for Level 2, etc.

Program Element - Six digits will be required to identify the specific Program Element. The first two digits will identify the project; the next two digits will identify the system; and the last two digits will identify the subsystem. Except in those instances where variation is required for Level 1 Schedules, or to accommodate the specific nature of a given schedule, the NASA Agency-Wide Coding System will be used. To insure consistency within the total Program Schedule Document, all numbers assigned to identify Program Elements will be reviewed and approved by the Office of Manned Space Flight (Code MPR) prior to assignment.

Type of Schedule - A single digit number will be assigned to identify the applicable Schedule Type as indicated below:

Number Assignment	Type of Schedule
1	Milestone-Development
2	Milestone-Launch or Delivery
3	Funding or Cost

Number Assignment	Type of Schedule
4	Manpower
5	Narrative

The scheduling system provides for a further extension of the above schedules within any given schedule level. Such extension to the basic schedule will be identified with a suffix letter. For example, a Funding Tabulation for a basic Funding Schedule would be identified as 3a. Similarly, a selected delivery schedule for a basic Milestone Schedule would be identified as 2a, 2b, etc.

Change Number - Change Numbers will be assigned sequentially, using one or two digits as required. These numbers will be the same as the "Last Change" number appearing in the upper-right corner of each schedule.

Manual Adaptation - The code system is designed for application to machine processing; however, for ease in handling and identifying schedules, zeros may be deleted, e.g., 2-310000-1a/3, may be shown as 2-31-1a/3.

C of F

The same logic for numbering R&D schedules is applied to CofF; however, basic differences between the R&D and CofF Agency-Wide Codes and differences in scheduling levels will be reflected in the Schedule Numbers as illustrated below:

Level A

$$\frac{A}{\text{Level}} - \frac{XXXX}{\text{Location}} - \frac{X}{\text{Type}} / \frac{X}{\text{Change Number}}$$

Level - Levels for CofF schedules will be identified the same as they appear on the schedule, i.e., "A" for Level A.

Location - Locations will be identified by the following numbers:

Marshall Space Flight Center	6200
Michoud Operations	6300
Mississippi Test Operations	6400
Manned Spacecraft Center	7200
Launch Operations Center	7600
Various Locations (All)	9100
Various Locations (MSFC)	9162
Various Locations (MSC)	9172
Various Locations (LOC)	9176

Type and Change Number - Type of schedule and schedule change numbers will be indicated in the same manner as illustrated for the R&D Schedules.

Level B

B	—	XXXX	—	XX	XX	X	—	X	/	X
Level		CofF Project Number		Related R&D Project No.	Location	Subsidiary Break		Type		Change Number

Level - Levels for CofF Schedules will be identified in the same way they appear on the schedule, i.e., "B" for Level B.

CofF Project Number - The four digit NASA CofF Project Number will be entered in this position.

Related R&D Project Number - The code number of the R&D Project which the CofF Project supports will be entered in this position.

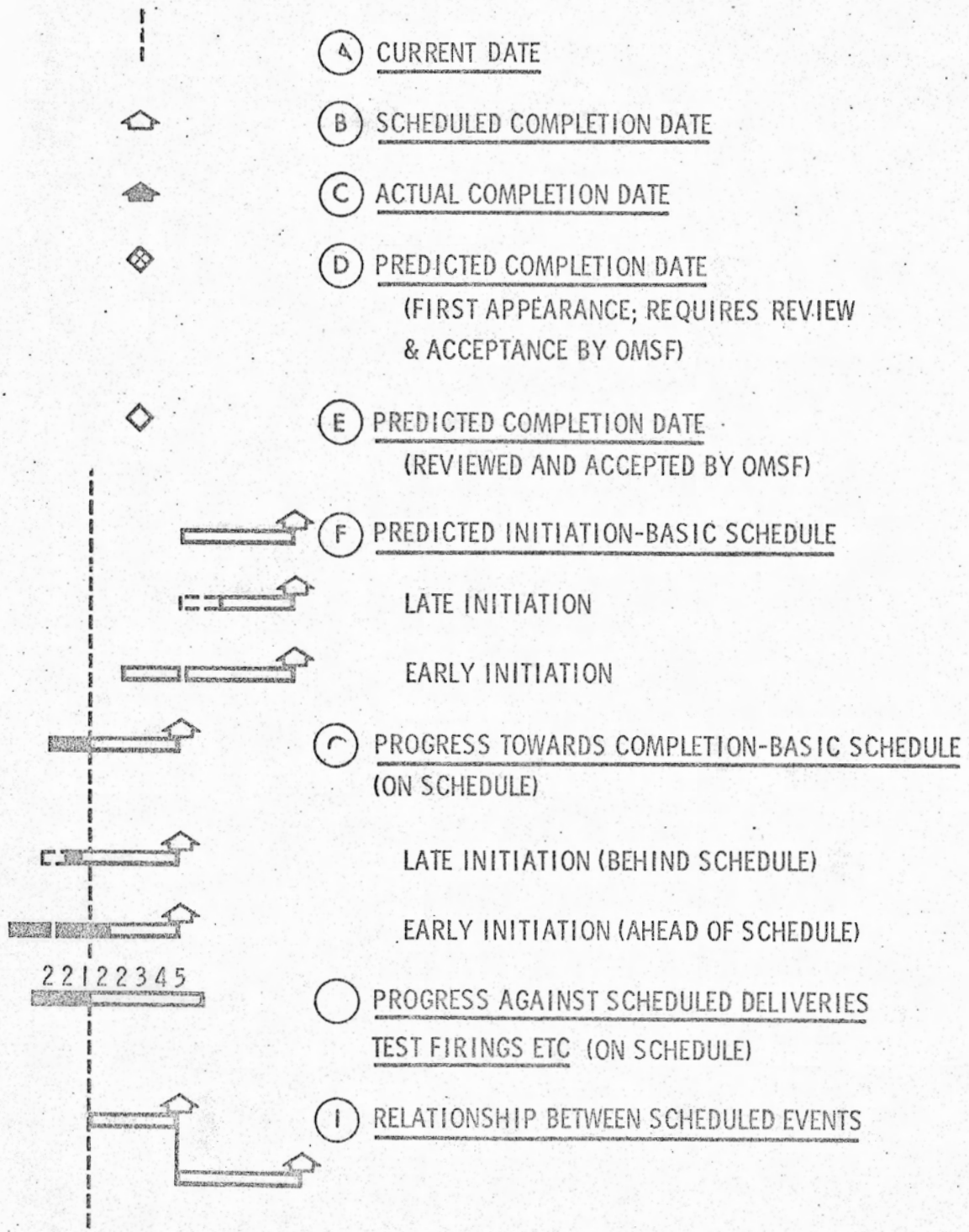
Location - The first two digits of the Location number (as listed for Level A above) will be entered in this position.

Subsidiary Break - If a separate schedule for a sub-project element is provided at Level B, a letter identification (a, b, c, etc.) will be entered in this position to distinguish the schedule from other elements of the project.

Type and Change Number - Same as for Level A.

SCHEDULE SYMBOLS

MILESTONE SYMBOLS



ENCLOSURE (4)

SCHEDULE SYMBOLS (Cont'd)

CURVES BARS

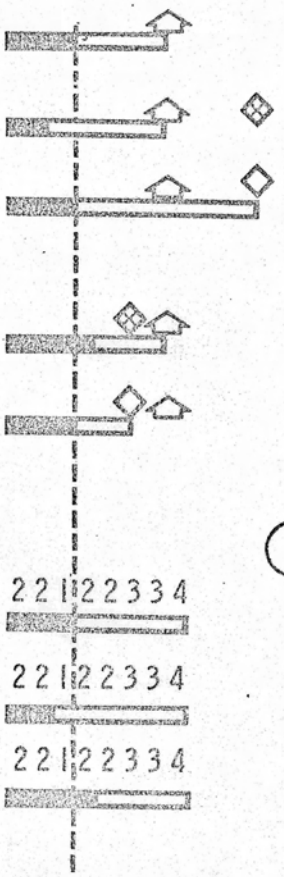
(J) GRAPH CURVES & BARS

PLANNED

ACTUAL

CURRENT ESTIMATE

(K) BARS IN RELATION TO ARROWS & DIAMONDS



BASIC SCHEDULE (BAR PLOTTED AGAINST ARROW)

"X" DIAMOND (BAR STILL PLOTTED AGAINST ARROW) *

OPEN DIAMOND (BAR EXTENDED TO DIAMOND AND PLOTTED AGAINST DIAMOND)

"X" DIAMOND (BAR PLOTTED AGAINST ARROW) *

OPEN DIAMOND (BAR PLOTTED AGAINST DIAMOND)

(L) BARS IN RELATION TO NUMERICAL DATA

ON SCHEDULE - FIVE CUMULATIVE DELIVERIES

BEHIND SCHEDULE-FOUR CUMULATIVE DELIVERIES

AHEAD OF SCHEDULE-SEVEN CUMULATIVE DELIVERIES

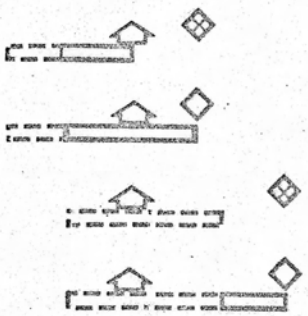
*BAR IS NEVER PLOTTED AGAINST AN "X" DIAMOND

ENCLOSURE (4)

SCHEDULE SYMBOLS (Cont'd)

RANDOM SITUATIONS

(M) PREDICTED LATE INITIATION & LATE COMPLETION



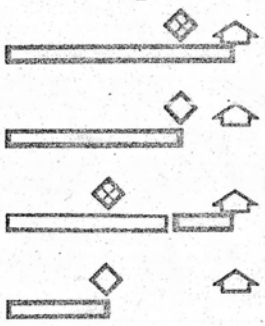
CONDITION "A" - PROPOSED

CONDITION "A" - ACCEPTED

CONDITION "B" - PROPOSED (PREDICTED INITIATION LATER THAN SCHEDULED COMPLETION)

CONDITION "B" - ACCEPTED

(N) PREDICTED EARLY INITIATION & EARLY COMPLETION



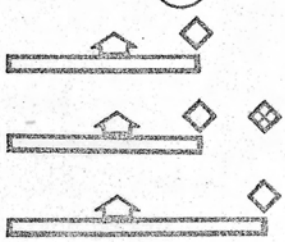
CONDITION "C" - PROPOSED

CONDITION "C" - ACCEPTED

CONDITION "D" - PROPOSED (PREDICTED COMPLETION EARLIER THAN SCHEDULED INITIATION)

CONDITION "D" - ACCEPTED

(O) NEW PREDICTED COMPLETION DATE



EXISTING SCHEDULE

PROPOSED

ACCEPTED

ENCLOSURE (4)

SCHEDULE RESPONSIBILITY Wm Bunn
NAME

STATUS RESPONSIBILITY Wm Mullen
NAME

MANNED SPACE FLIGHT SCHEDULE

SAMPLE MILESTONE SCHEDULE

3 LEVEL

CONTRACTOR: CONTRACTOR "X" (NAS-0000)

PROJECT: ABLE
SCH'D NO: 00000

ORIGINAL SCHEDULE APPROVAL 1/10/62 (Date)

LAST SCHEDULE CHANGE _____ (Date) _____ (No) _____ (Initials)

STATUS AS OF 11/30/62 (Date) SR (Initials)

	MILESTONES
1	KEY MILESTONE A (E. G. OP"L DATE)
2	KEY MILESTONE B (E. G. LAUNCH)
3	COMPONENT A
4	MILESTONE (NOTE 1)
5	MILESTONE (NOTE 2)
6	MILESTONE
7	MILESTONE
8	COMPONENT B
9	MILESTONE (NOTE 3)
10	MILESTONE (NOTE 4)
11	MILESTONE
12	MILESTONE
13	DELIVERIES
14	
15	
16	MILESTONE (NOTE 5)
17	MILESTONE (NOTE 5)
18	
19	
20	

CY 19 | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D

(KEY MILESTONES)

(INTERNAL MILESTONES)

2 1 2 2 3 3 2 1 1

EXTERNAL INTERFACES

NOTES

NOTE 1 (EXPLANATION)
NOTE 2 (EXPLANATION)
(ETC.)

ENCLOSURE (5)

SCHEDULE RESPONSIBILITY Joe Cruz
NAME
STATUS RESPONSIBILITY D. Enright
NAME

MANNED SPACE FLIGHT SCHEDULE

PROGRAM SUMMARY
CURRENT FISCAL YEAR

1 LEVEL

CONTRACTOR: NOT APPLICABLE

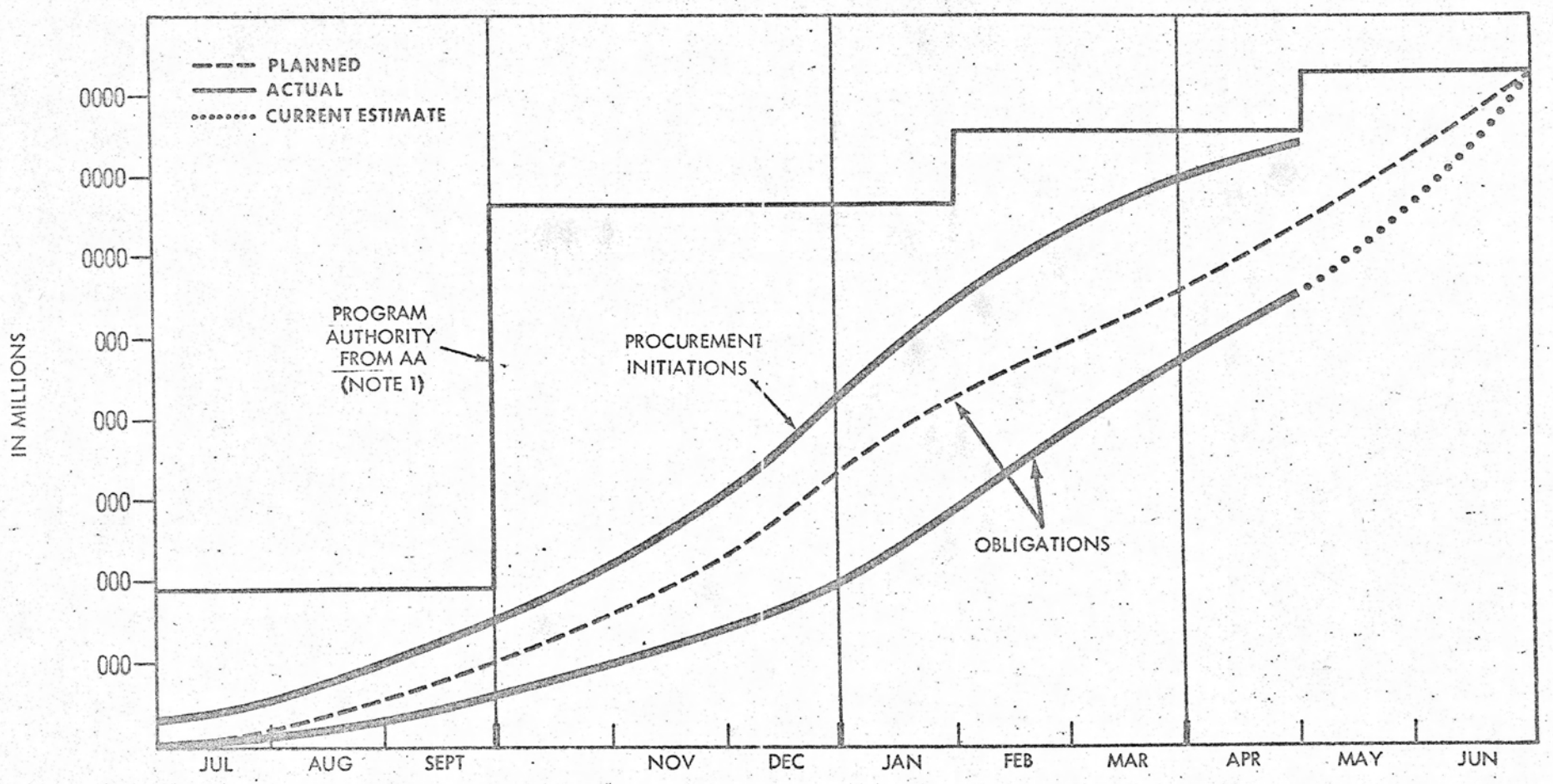
PROJECT: NOT APPLICABLE

SCH'D NO: 00000

ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date)

LAST SCHEDULE CHANGE 12/31/62 (Date) #1 (No.) (Initials)

STATUS AS OF 4/30/63 (Date) (Initials)



AUTHORITY
INITIATIONS
PLANNED
ACT/EST OBL

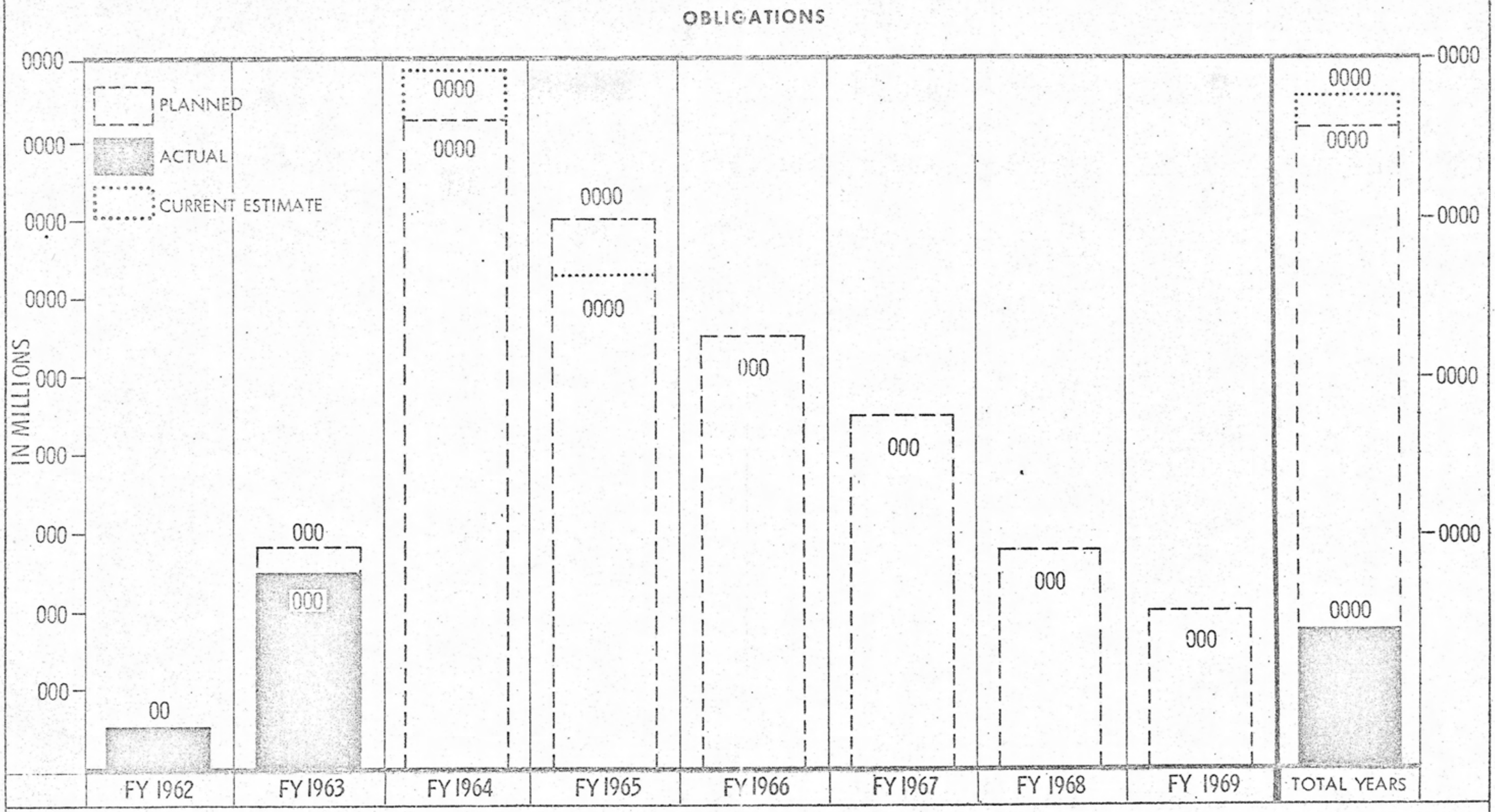
(TABULATION OF CURVES)

NOTES

NOTE 1: FOR C OF F SUBMISSION, PROGRAM AUTHORITY WILL BE SHOWN ON THE PROJECTED YEAR SCHEDULE (ENCLOSURE (7)

ENCLOSURE (6)

SCHEDULE RESPONSIBILITY ______ NAME STATUS RESPONSIBILITY ______ NAME	**MANNED SPACE FLIGHT SCHEDULE** **PROGRAM SUMMARY PROJECTED YEARS** LEVEL 1 CONTRACTOR: NOT APPLICABLE PROJECT: NOT APPLICABLE SCH'D NO: 0000	ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date) LAST SCHEDULE CHANGE 12/31/62 (Date) #1 (No) (Initials) STATUS AS OF 4/30/63 (Date) (Initials)



NOTES

ENCLOSURE (7)

SCHEDULE RESPONSIBILITY [signature] NAME STATUS RESPONSIBILITY [signature] NAME	MANNED SPACE FLIGHT SCHEDULE **SAMPLE FUNDING TABULATION** LEVEL 2 CONTRACTOR: NOT APPLICABLE PROJECT: ABLE SCH'D NO: 00000	ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date) LAST SCHEDULE CHANGE 1/2/63 (Date) #1 (No) [initials] (Initials) STATUS AS OF 2/28/63 (Date) [initials] (Initials)

PROGRAM OR PROJECT ELEMENT	TOTAL OBLIGATIONS PRIOR FY	PLANNED OBLG TO DATE CURRENT FY	ACTUAL OBLG TO DATE CURRENT FY	PLANNED TOTAL OBLG CURRENT FY	PLANNED TOTAL OBLG AT COMPL

SCHEDULE RESPONSIBILITY [illegible]
NAME
STATUS RESPONSIBILITY [illegible]
NAME

MANNED SPACE FLIGHT SCHEDULE

SAMPLE FUNDING SCHEDULE

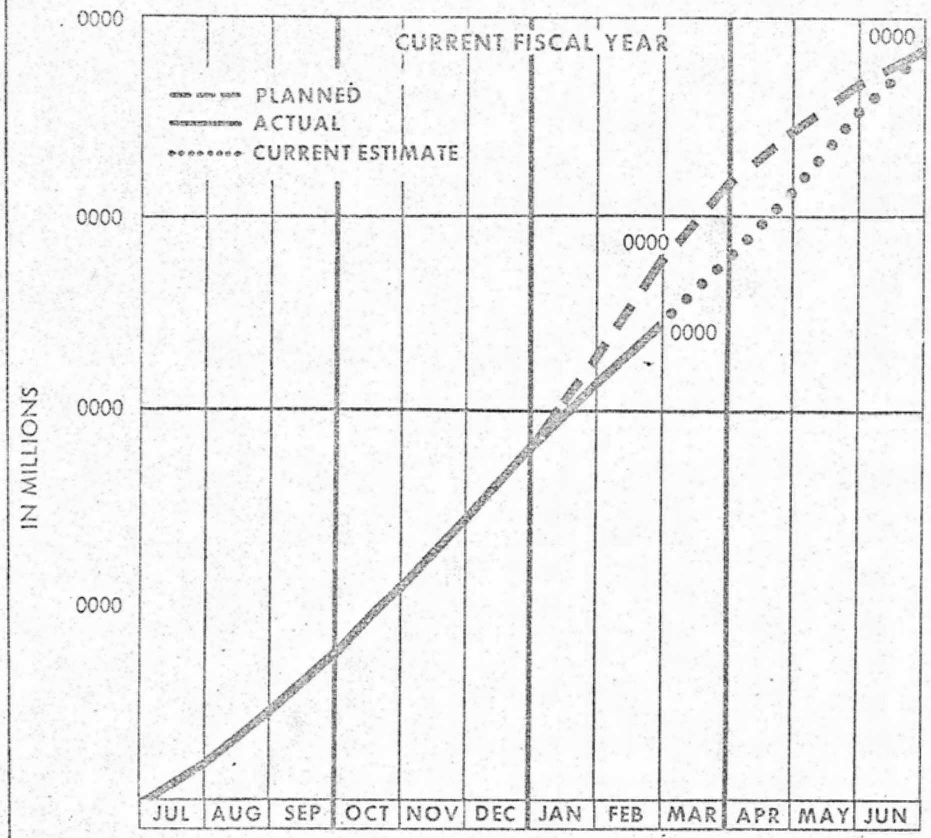
2 LEVEL

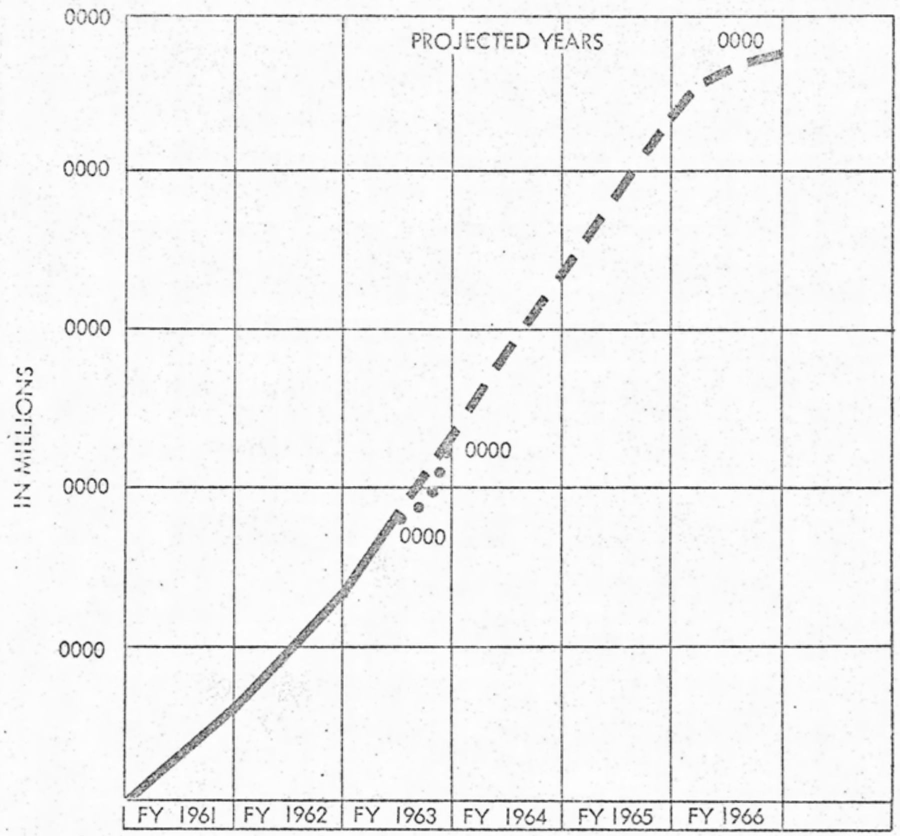
CONTRACTOR: NOT APPLICABLE

PROJECT: ABLE
SCH'D NO: 00000

ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date)
LAST SCHEDULE CHANGE 1/2/63 (Date) #1 (No) [illegible] (Initials)
STATUS AS OF 2/28/63 (Date) [illegible] (Initials)

OBLIGATIONS





PLANNED
ACT./EST.
(TABULATION OF CURVES)
PLANNED
ACT./EST.

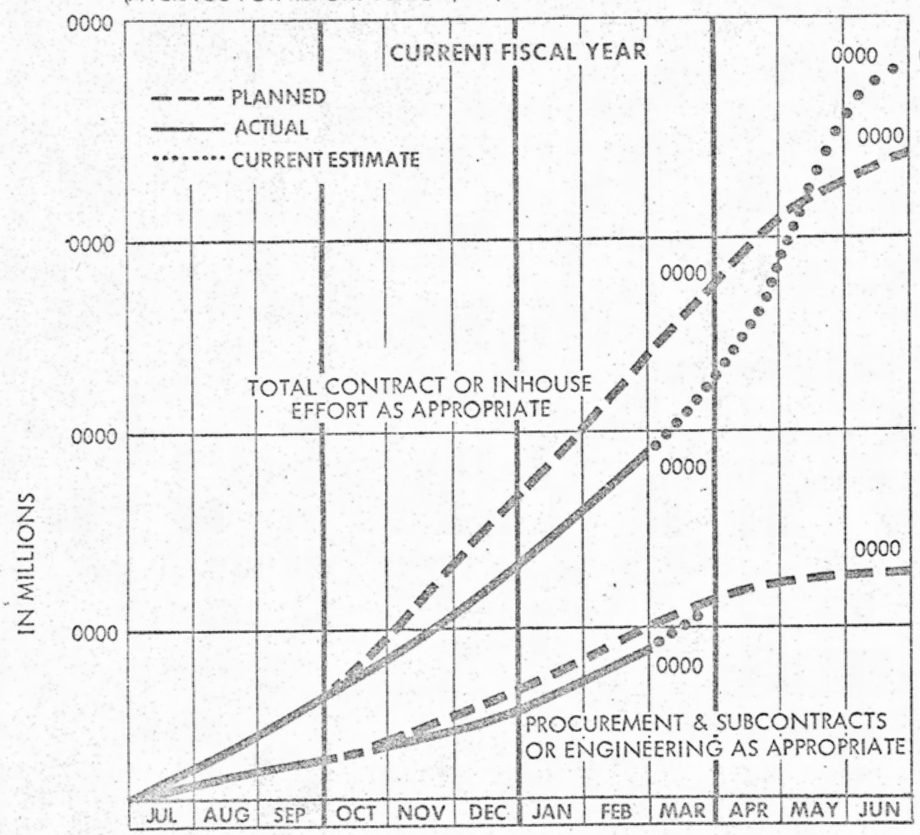
PLANNED
ACT./EST.
(TABULATION OF CURVES)
PLANNED
ACT./EST.

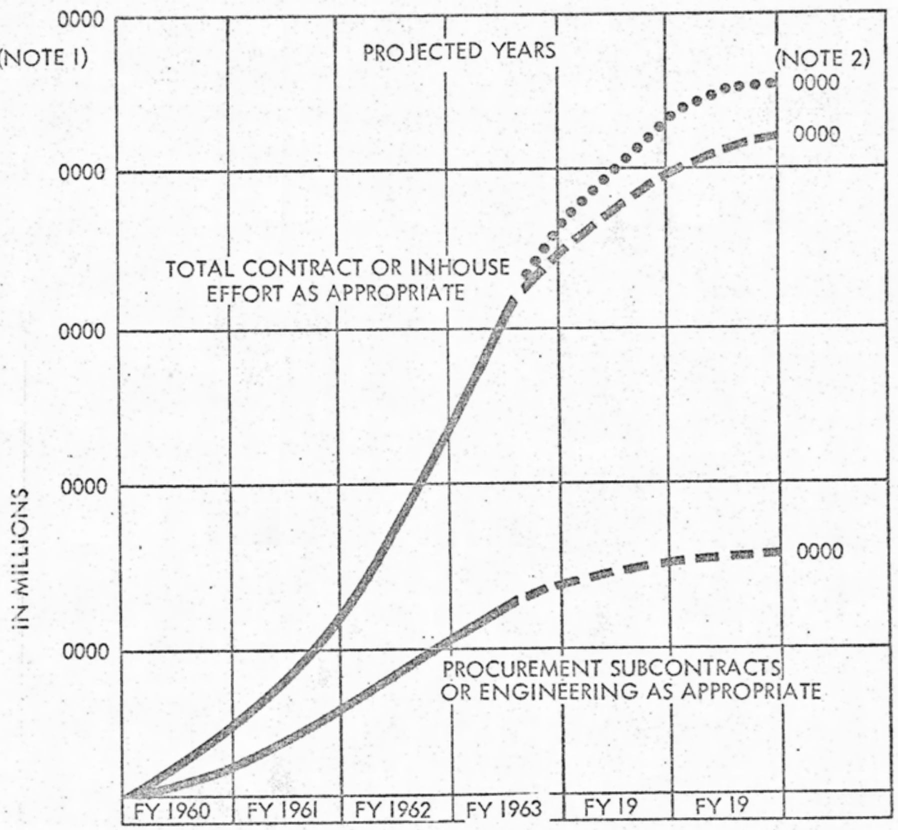
NOTES

ENCLOSURE (9)

SCHEDULE RESPONSIBILITY [illegible] NAME STATUS RESPONSIBILITY [illegible] NAME	MANNED SPACE FLIGHT SCHEDULE **SAMPLE COST SCHEDULE** — LEVEL 3 CONTRACTOR: "X" COMPANY (NAS-0000) PROJECT: ABLE SCH'D NO: 00000	ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date) LAST SCHEDULE CHANGE 9/31/62 (Date) #1 (No) [illegible] (Initials) STATUS AS OF 2/28/63 (Date) [illegible] (Initials)

PERCENTAGE OVERTIME 15% (AVERAGE FOR REPORT PERIOD) NO. OF SHIFTS 2 (END OF REPORT PERIOD) ACCRUED COST





PLANNED
ACT./EST. (TABULATION OF CURVES)
PLANNED
ACT./EST.

PLANNED
ACT./EST. (TABULATION OF CURVES)
PLANNED
ACT./EST.

NOTES
NOTE 1 (EXPLANATION)
NOTE 2 (EXPLANATION)

ENCLOSURE (10)

SCHEDULE RESPONSIBILITY _____ NAME

STATUS RESPONSIBILITY _____ NAME

MANNED SPACE FLIGHT SCHEDULE

SAMPLE MANPOWER SCHEDULE

3 LEVEL

CONTRACTOR: CONTRACTOR "Y" (NAS-0000)

PROJECT: ABLE
SCH'D NO: 0000

ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date)

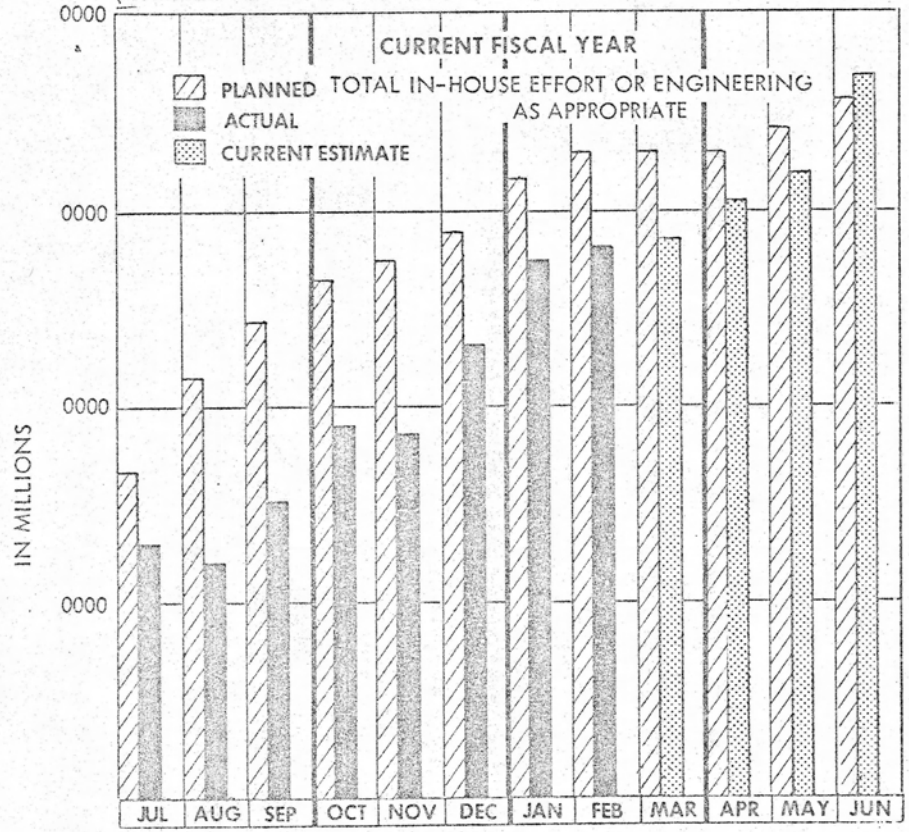
LAST SCHEDULE CHANGE _____ (Date) _____ (No) _____ (Initials)

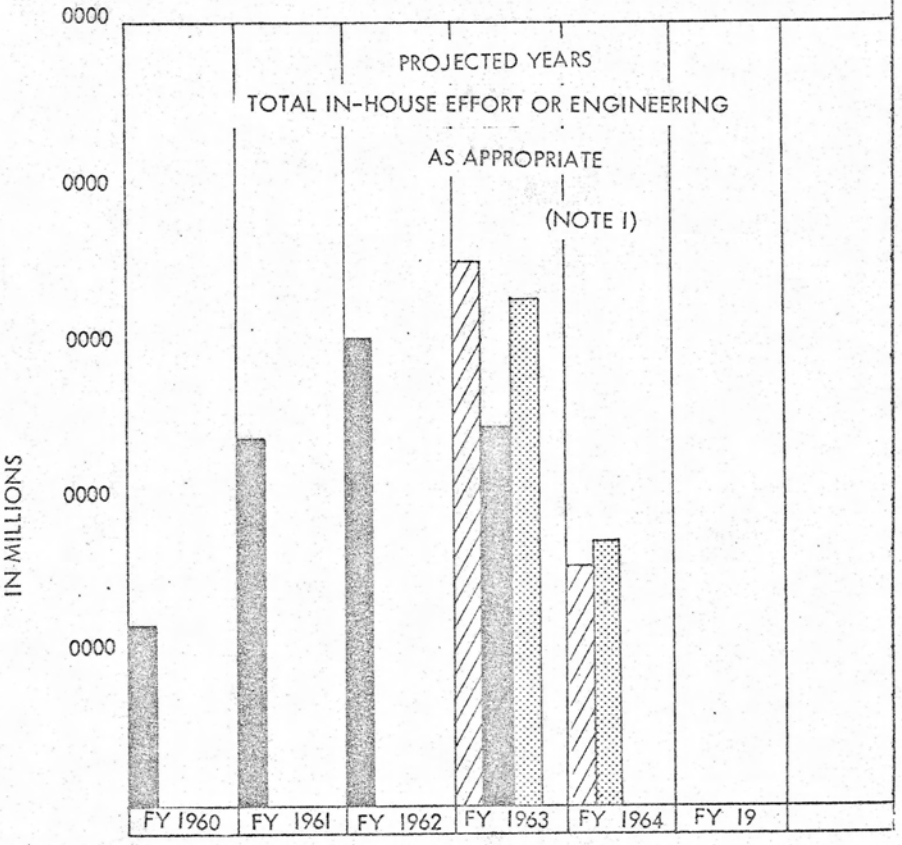
STATUS AS OF 2/28/63 (Date) _____ (Initials)

PERCENTAGE OVERTIME 10% (AVERAGE FOR REPORT PERIOD)

NO. OF SHIFTS 1 (END OF REPORT PERIOD)

DIRECT MANHOURS





PLANNED ACT./EST.
PLANNED ACT./EST.
(TABULATION OF BARS)

PLANNED ACT./EST.
PLANNED ACT./EST.
(TABULATION OF BARS)

NOTES NOTE 1 (EXPLANATION)

ENCLOSURE (11)

SCHEDULE RESPONSIBILITY ____ [signature] ____ NAME STATUS RESPONSIBILITY ____ [signature] ____ NAME	MANNED SPACE FLIGHT SCHEDULE **NARRATIVE FORMAT** 2 LEVEL CONTRACTOR: NOT APPLICABLE PROJECT: ABLE SCH'D NO: 00000	ORIGINAL SCHEDULE APPROVAL 6/30/62 (Date) LAST SCHEDULE CHANGE 1/28/63 (Date) #1 (No) [initials] (Initials) STATUS AS OF 2/28/63 (Date) [initials] (Initials)

ENCLOSURE (12)

MANNED SPACE FLIGHT

PROGRAM SCHEDULING MANUAL

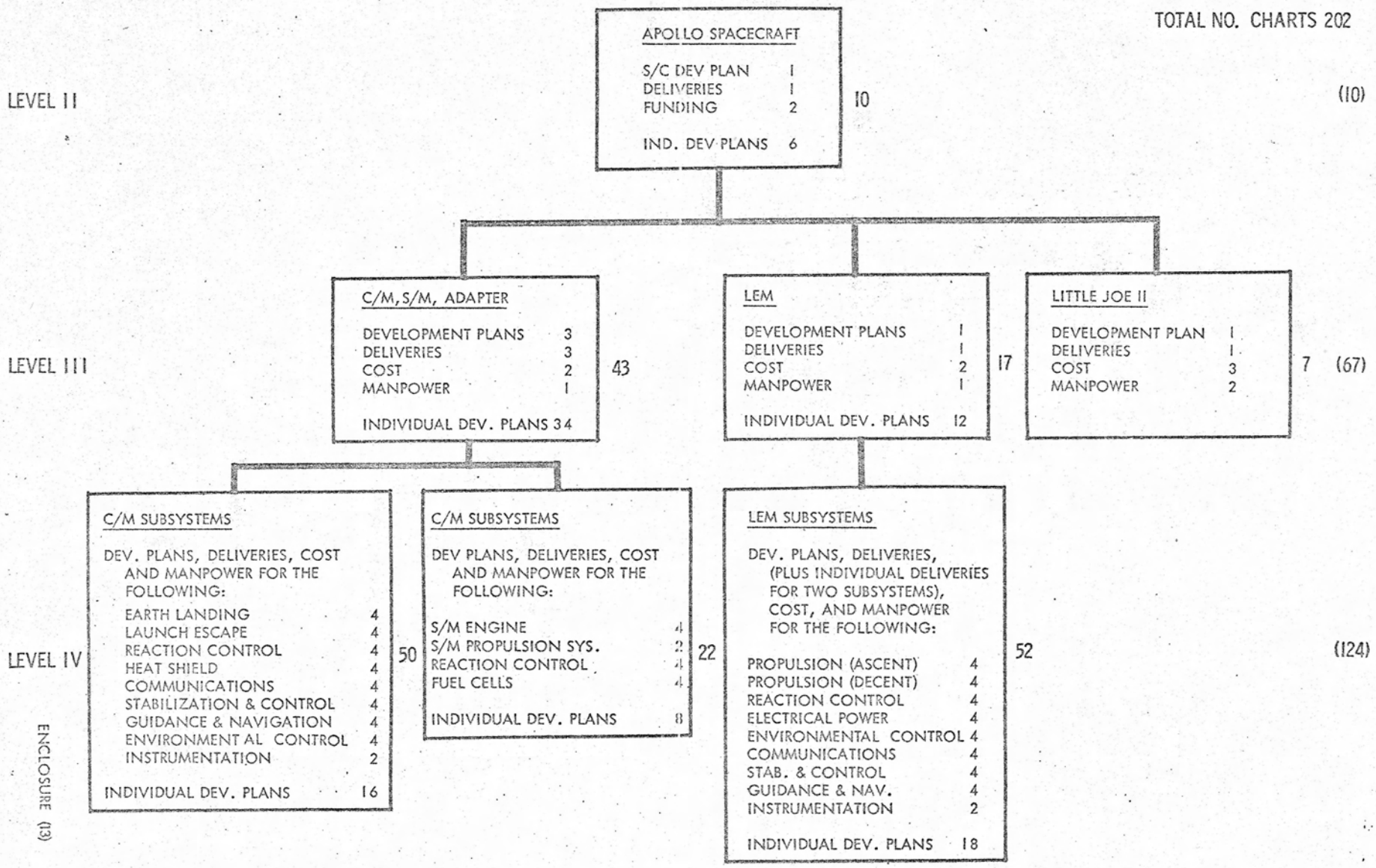
SECTION III

Program Status and Review

(M-I M 9330.008)

APOLLO SPACECRAFT SCHEDULE STRUCTURE

TOTAL NO. CHARTS 202



ENCLOSURE (13)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

OFFICE OF MANNED SPACE FLIGHT

INSTRUCTION	M-I M 9330.008 (Topic)	Date SEP 16, 1963

From: Deputy Director of Manned Space Flight (Programs)

To: Distribution

Subject: Program Status and Review

OMSF
Program Scheduling Manual
Section III

1. PURPOSE

The purpose of this Instruction is to establish requirements, responsibilities, and procedures as necessary to conduct Manned Space Flight Program Reviews.

2. CANCELLATION

This Instruction and associated Instructions M-I M 9330.006 and .007 supersede OMSF Program Scheduling Procedure of April 19, 1962; M-I M 9330.002 of December 5, 1962; and supporting memorandums and correspondence M-M M 9330.003, .004, .005, .008, and .011; and M-C P 9330.057.

3. BACKGROUND

The Manned Space Flight Program Schedule Document, as described in preceding Sections of the Program Scheduling Manual, will be the basis for monthly presentations of program status to the Deputy Associate Administrator for Manned Space Flight (AAD-2). As part of the process, the Program Review will provide the following:

a. An overall view of the Manned Space Flight Program so that each element and its interfaces may be viewed in the proper context.

b. A forum for the discussion of problem areas affecting adherence to program objectives and schedules.

c. Additional administrative machinery for the direction and control of the Manned Space Flight Program, including the review and approval of proposed schedule changes.

d. A record of recommendations, decisions, and action assignments.

4. RESPONSIBILITIES

Individuals assigned Schedule and Status Responsibility as established in Section I of the Program Scheduling Manual (M-I M 9330.006) are responsible for scheduled effort and for insuring that all schedule submissions are an accurate reflection of current status. Parent organizations of these individuals, i.e., OMSF, LOC, MSC, and MSFC, will establish internal procedures as necessary to: (1) update, print, and distribute applicable portions of the Program Schedule Document; and (2) provide necessary support for presentation of schedule status at the monthly Program Review.

5. SCHEDULING OF REVIEWS

Normally, Program Reviews will be held on the Thursday and/or Friday preceding the monthly Management Council Meeting, thus permitting the Council to direct its attention to any major issues that may evolve during the Program Review. Although, occasionally, it may be desirable to schedule Reviews as part of the Management Council Meeting, this type of Review would be the exception rather than the rule. Generally, Reviews will not exceed eight hours in length and will be covered in either one day or two succeeding days.

6. SCHEDULE SUBMISSIONS

a. Schedules will be updated each month and distributed in accordance with the Master Distribution List specified under separate Instruction M-I M 9330.010A. To meet this requirement, sufficient time must be provided in the updating process to insure coordination between the Center and Project Managers and the OMSF Staff Personnel; to permit a final review by the Director assigned Schedule Responsibility;

and to establish a firm cut-off date on schedule changes and predictions as required to update schedules maintained by OMSF and complete printing and distribution of the schedule document. A typical cycle of events to accomplish these objectives is outlined in Enclosure (1). Although some flexibility will be possible in the early stages of the cycle, a firm requirement will exist for distribution of schedules three working days prior to the Review and for the associated cut-off date and TWX Reports six working days prior to the Review.

b. For each Program Review, a set of Vu-Graphs covering all schedules (Milestone, Funding, Cost, and Manpower, and Supporting Narratives) will be prepared by the responsible organization and forwarded to OMSF together with the printed Schedule Documents.

7. SCHEDULE PRESENTATION

The availability of a completely updated Schedule Document, and supporting Vu-Graphs, will permit a review of total program effort or a review in depth of selected program elements or problem areas, as appropriate. Responsibility for the presentation of such information at the Program Review is assigned to the cognizant OMSF Director. Depending upon the depth of information required, or other considerations that may be involved, the cognizant OMSF Director will draw upon his own OMSF Staff Personnel, and/or request participation by Field Center personnel. Flexibility will be maintained to permit OMSF or Field Center presentations on alternate months or joint presentations as appropriate. Specific requirements for each Program Review will be as follows:

a. All presentations will be based on schedules selected from the Program Schedule Document. Other supporting visual materials may be used, but only as necessary to supplement, not to replace, the basic schedules.

b. Presentations will be geared to the physical capabilities provided in the OMSF Management Center and will be designed to exploit the use of multiple-screen projection

to provide continuity and to illustrate schedule relationships. Individuals making presentations will be responsible for insuring that all special graphic materials, presentation instructions, and supporting cue-sheets are provided to the Management Center (Code MPRP) prior to the Review.

c. The programmatic "Road Map" as provided in the Program Schedule Document will be used as part of each presentation to identify the sequence of relationship of schedules to be discussed.

d. Presentations will stress problem areas and will highlight those items where the effort is currently behind schedule, or where a change in the completion date is predicted. Where new schedules have been approved, both the old and new schedule will be displayed. Each presentation should include a listing of problem areas reported in previous submissions, that are still unresolved, with an indication of current progress.

e. Minutes of every Review will be recorded and distributed within three working days following the Review. These minutes will document decisions and action assignments made at the Review and will serve as an official communication for initiation and/or re-direction of program effort.

8. EXCEPTION REPORT

a. Based on a detailed review and analysis of the Field Center submission, the cognizant OMSF Director will identify all schedule changes and new predicted initiation or completion dates where it is proposed that exception be taken by OMSF. These exceptions will be reviewed with the Deputy Director (Programs), OMSF, and highlighted at the Program Review, and, if appropriate, at the Management Council Meeting. Final decisions will be consolidated into a TWX Report for transmittal to the Field Centers as a basis for the next schedule submission. Exception Reports will be transmitted at the earliest possible date and no later than fourteen days following the Program Review.

b. In addition to identifying specific items of exception, this report will also specify the deletion of any schedules or milestones that may have been prepared only for planning purposes, or for other reasons are no longer required, as well as any new schedule or milestone requirements that should be documented and incorporated into the system. This process of updating requirements will be the product of a continuing review to insure that meaningful data are contained in the Schedule Document at all times. If no exception nor new requirement is indicated by OMSF, the schedules, schedule change, and predicted initiation or completion dates submitted by the Field Centers will be considered to be in effect.

George M Low 9-16-63

George M. Low

Enclosure:
1. Time-Phasing of Events for Program Reviews

OMSF INSTRUCTION M-I M 9330.008 September 16, 1963

Time-Phasing of Events
for
Manned Space Flight Program Reviews

The following plan describes a thirty-day cycle of events to conduct monthly Program Reviews on the Thursday and/or Friday preceding the Management Council Meeting.

Days of Cycle	Day of Week	Event
1 - 14		Project Managers update schedules.
15 - 16	Thursday and Friday	OMSF Staff and Center Project Managers hold discussions to identify problem areas and formulate recovery plans.
19 - 20	Monday and Tuesday	Centers hold internal review; OMSF Staff Members brief OMSF Directors. Any unresolved issues resulting from the Project Manager/OMSF Staff discussions will be highlighted.
21	Wednesday	Firm cut-off date on all schedule and status changes for the current submission. A TWX Report will be prepared by the Field Centers as necessary to update Level 1 and other schedules maintained by OMSF. In addition, this report will indicate any changes in schedules or schedule status that have taken place since the Project Manager/OMSF Staff discussions. All items covered in the report will include supporting explanations. Concurrent with this action, Field Centers will transmit TWX Reports to each of the other Field Centers indicating the status of milestones that appear on the other Centers' schedules as External Interfaces.

ENCLOSURE (1)

Days of Cycle	Day of Week	Event
26	Monday	General distribution, i.e., printed schedules to all Centers; schedules and Vu-Graphs to OMSF.
29 - 30	Thursday and Friday	OMSF Program Review will be held using Vu-Graphs of the printed schedule document. Late changes in status of a significant nature will be covered verbally or through the use of overlays, if desired.