George E. Mueller to Director, Manned Spacecraft Center, et al., "Revised Manned Space Flight Schedule," 31 October 1963, "All-Up" Decision File, NASA Historical Reference Collection, NASA Headquarters, Washington, D.C.

In the fall of 1963, as this document shows, the Deputy Associate Administrator for Manned Space Flight made a decision to drop the traditional step-by-step flight tests of rockets and spacecraft components in the interest of speeding the development process. Instead, George Mueller told NASA engineers to assemble all the stages of the Saturn V rocket along with the command and service module and conduct just two or three non-piloted test flights of the whole system. This decision became known as the "All-Up" test procedure. It accelerated the program by at least several months, paying off on 9 November 1967 when NASA successfully launched an "all-up" Saturn/Apollo vehicle.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON 25, D.C.

IN REPLY REFER TO:
M-C M 9330.186

OCT 3 1963
Oct 31, 1963

TO: Director, Manned Spacecraft Center
Houston 1, Texas

Director, Launch Operations Center
Cocoa Beach, Florida

Director, Marshall Space Flight Center
Huntsville, Alabama

FROM: Deputy Associate Administrator for Manned Space Flight

SUBJECT: Revised Manned Space Flight Schedule

Recent schedule and budget reviews have resulted in a deletion of the Saturn I manned flight program and realignment of schedules and flight mission assignments on the Saturn IB and Saturn V programs. It is my desire at this time to plan a flight schedule which has a good probability of being met or exceeded. Accordingly, I am proposing that a flight schedule such as shown in Figure 1, with slight adjustments as required to prevent "stack-up", be accepted as the official launch schedule. Contractor schedules for spacecraft and launch vehicle deliveries should be as shown in Figure 2. This would allow actual flights to take place several months earlier than the official schedule. The period after checkout at the Cape and prior to the official launch date should be designated the "Space Vehicle Acceptance" period.

With regard to flight missions for Saturn I, MSC should indicate when they will be in a position to propose a firm mission and spacecraft configuration for SA-10. MSFC should indicate the cost of a meteoroid payload for that flight. SA-6 through SA-9 missions should remain as presently defined.

CLASSIFICATION CHANGED
To Unclassified
Authority of NASA Sec Class Officer
Date 4-21-7 [illegible]

It is my desire that "all-up" spacecraft and launch vehicle flights be made as early as possible in the program. To this end, SA-201 and 501 should utilize all live stages and should carry complete spacecraft for their respective missions. SA-501 and 502 missions should be reentry tests of the spacecraft at lunar return velocity. It is recognized that the Saturn IB flights will have CM/SM and CM/SM/LEM configurations.

Mission planning should consider that two successful flights would be made prior to a manned flight. Thus, 203 could conceivably be the first manned Apollo flight. However, the official schedule would show the first manned flight as 207, with flights 203-206 designated as "man-rating" flights. A similar philosophy would apply to Saturn V for "man-rating" flights with 507 shown as the first manned flight.

I would like your assessment of the proposed schedule, including any effect on resource requirements in FY 1964, 1965 and run-out by November 11, 1963. My goal is to have an official schedule reflecting the philosophy outlined here by November 25, 1963.

George M. Low

George E. Mueller
Deputy Associate Administrator
for Manned Space Flight

Enclosures:
Figure 1
Figure 2

TABLE 1 - FLIGHT SCHEDULE

Saturn I

SA-5	Veh. Dev.	Dec. 1963
SA-6	Apollo B/P	Apr. 1964
SA-7	Apollo B/P	Aug. 1964
SA-9	Meteoroid	Dec. 1964
SA-8	Meteoroid	Apr. 1965
SA-10	Meteoroid	Aug. 1965

Saturn IB

SA-101	CSM	Jan. 1966
SA-102	CSM	Apr. 1966
SA-103	CSM/SM/LEM	Jul. 1966
SA-104	" "	Oct. 1966
SA-105	" "	Dec. 1966
SA-106	" "	Feb. 1967
SA-107	Manned	Apr. 1967
SA-108	" "	Jun. 1967
SA-109	" "	Aug. 1967
SA-110	" "	Oct. 1967
SA-111	" "	Dec. 1967
SA-112	" "	Feb. 1968

Saturn V

SA-501	"All-Up" Vehicle and S/C Re-entry	Jan. 1967
SA-502	" "	Apr. 1967
SA-503	Lunar Mission Conf.	Jul. 1967
SA-504	" "	Oct. 1967
SA-505	" "	Dec. 1967
SA-506	" "	Feb. 1968
SA-507	Manned	Apr. 1968
SA-508	" "	Jun. 1968
SA-509	" "	Aug. 1968
SA-510	" "	Oct. 1968
SA-511	" "	Dec. 1968
SA-512	" "	Feb. 1969
SA-513	" "	Apr. 1969
SA-514	" "	Jun. 1969
SA-515	" "	Aug. 1969

FIGURE 2 - DELIVERY SCHEDULE ([illegible])

Latest Allowable Deliveries

SATURN I	VEHICLE	S/C
SA-5	Delivered	Delivered
SA-6	Jan. 1964	Jan. 1964
SA-7	May 1964	May 1964
SA-9	Sep. 1964	Sep. 1964
SA-8	Dec. 1964	Dec. 1964
SA-10	Feb. 1965	Undetermined
SATURN I-B		
SA-201	Aug. 1965	Jun. 1965
SA-202	Nov. 1965	Sep. 1965
SA-203	Feb. 1966	Dec. 1965
SA-204	May 1966	Mar. 1966
SA-205	Jul. 1966	May 1966
SA-206	Sep. 1966	Jul. 1966
SA-207	Nov. 1966	Sep. 1966
SA-208	Jan. 1967	Nov. 1966
SA-209	Mar. 1967	Jan. 1967
SA-210	May 1967	Mar. 1967
SA-211	Jul. 1967	May 1967
SA-212	Sep. 1967	Jul. 1967
SATURN V		
SA-501	Jun. 1966	May 1966
SA-502	Oct. 1966	Aug. 1966
SA-503	Jan. 1967	Nov. 1966
SA-504	Apr. 1967	Jan. 1967
SA-505	Jun. 1967	Apr. 1967
SA-506	Aug. 1967	Jun. 1967
SA-507	Oct. 1967	Aug. 1967
SA-508	Dec. 1967	Oct. 1967
SA-509	Feb. 1968	Dec. 1967
SA-510	Apr. 1968	Feb. 1968
SA-511	Jun. 1968	Apr. 1968
SA-512	Aug. 1968	Jun. 1968
SA-513	Oct. 1968	Aug. 1968
SA-514	Dec. 1968	Oct. 1968
SA-515	Feb. 1969	Dec. 1968