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REPORT OF COMMITTEE TO INVESTIGATE LAUNCH
SCHEDULING STATUS - 19 FEB 1959

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REVIEWED

BY D. B. [Signature]

DATE 2/18/83

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19 February 1959

WS 117L PROGRAM

Report of Committee to Investigate Launch Scheduling Status

1. On 9 February 1959, Colonel Harry Evans, Director for WS 117L, established a committee to visit Lockheed. The committee membership was as follows:

Major Raymond E. Zelenka	Chairman	AFEMD
Major Mark Farnum, Jr.	Member	AFEMC
Mr. John McLachlin	Member	AFPR, IMSD

2. The purpose of the committee was, through objective discussion with members of IMSD, to define exactly what our current position is as it affects the program so that a realistic launching schedule could be determined.

3. The approach taken was to conduct free discussion at IMSD to determine the exact status of the program in the following areas:

- a. Manufacturing.
- b. Modification and Checkout.
- c. Santa Cruz Test Base.
- d. Vandenberg Launch Base.
- e. Recovery Operations.
- f. Tracking Network.

4. The committee had the services of the following Air Force personnel during the discussions held at IMSD on 11 and 12 February 1959:

Major John S. Plummer	AFEMD
Major Norman W. Rehbein	AFEMD
Major Alfred N. Allred	AFEMD
Major John Piets	AFEMD
Major William C. Bunn	AFEMD Palo Alto Field Office
Mr. Eugene Silberman	AFEMC
Major Ernest H. Brass, Jr.	AFEMC
Colonel Roy Gustafson	AFPR
Mr. G. H. Weaver	AFPR
Mr. Elmo Haden	AFPR
Mr. Francis Smith	AFPR
Mr. Raymond Garcia	AFPR

5. Representing Lockheed Missiles and Space Division:

Mr. Don Murphy
 Mr. Fred O'Green
 Mr. Nicholas Milakevich

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Mr. Tram Pritchard
Mr. L. Richter
Mr. Robert J. Naegels
Mr. Ralph King
Mr. Don Smith
Mr. Roy Barnes
Mr. J. Jenkins

6. Facts developed during discussion with IMSD:

A. Manufacturing Area:

- (1) There appeared to be unresolved propellant tank problems involving soft areas and leakage. Vehicle 1028 in Mod and Checkout lacked tanks and vehicles 1052 through 1056 also lacked tanks. No ECB's were available from factory C-1 and, therefore, a recovery program could not be established.
- (2) Chronic problems involving integrators, computers, horizon scanners, regulators, IRP's, programmers and transducers were all contributing to a behind schedule condition. Some of these problems are resolved in Mod and Checkout.
- (3) A task force has been established to attempt, in conjunction with the vendors and test people, to eliminate the shortages. A statement was made that they would succeed within the next four to six weeks.
- (4) Normal installation time on a tank in the assembly area is six weeks, but such installation can be made in six days if necessary.
- (5) Vehicles 1024 and 1026 have been set aside and 1061 and 1062 are carried on schedule, at the moment, for planning purposes. Vehicles 1024 and 1026 are held at the moment as possible replacements for 1061 and 1062.
- (6) IMSD will provide AFBMD, by 25 February 1959, results of a cost analysis study on recycling 1019, 1024, 1026 to a UIMH configuration as opposed to the cost of completing 1056, 1053, and 1055.
- (7) IMSD requires instruction or guidance as to which payloads are sacrificed in the cutback to fifteen flights and an identification of where they fall out of the schedule.

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B. Modification and Checkout Area:

- (1) The guidance computer and associated integrator are pacing items through Mod and Checkout.
- (2) Sixty days are required in Mod and Checkout from receipt of the computer to release of the vehicle from Mod and Checkout.
- (3) Ninety days are required from receipt of the vehicle from final assembly to release from Mod and Checkout, with an interval of approximately two weeks between release of vehicles.
- (4) Vehicle 1020 is minus the SS/L payload. This does not appear to pose a serious problem as the payload can be mated at Santa Cruz.
- (5) Mod and Checkout is still experiencing troubles with component items, as for example the guidance gyros. The schedules established in Mod and Checkout do not provide for unforeseen trouble areas. Any such areas arising will certainly affect the schedule.
- (6) 80% of the time in Mod and Checkout is spent in repair of components and 20% in test.
- (7) The lack of LACE has had no delaying effect in Mod and Checkout.
- (8) There are five Mod and Checkout positions in active work at the moment and these are two system checkout positions, two guidance checkout positions and miscellaneous subsystem checkout and rework stations. Mod and Checkout can process two at a time through all the hard areas.

C. Santa Cruz Test Base Area:

- (1) No attempt is being made at Santa Cruz to simulate flight conditions to be encountered with the vehicles. Facilities do not provide adequate means for duplicating the functions that would occur during countdown.
- (2) The entire Santa Cruz and Vandenberg schedules will require an approximately 48 hour work week for all personnel. In the event any difficulties are encountered, additional overtime will be necessary.
- (3) The purpose of the tests at Santa Cruz are essentially an engine performance test during which installed subsystems and critical points within the vehicle are monitored under vibration.

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(4) In the event the tests at Santa Cruz are bypassed with any flight vehicle, the work to be accomplished at Vandenberg on that particular vehicle will not increase. There is no modification work on flight vehicles being accomplished at Santa Cruz. There are very minor modifications being accomplished at Vandenberg.

(5) The schedule for flight vehicles at Santa Cruz requires full time occupancy of the two available vehicle test stands. Present scheduling does not provide any allowance for propulsion test vehicle tests or R&D testing other than scheduled flight vehicles. As a very minimum, tests at Santa Cruz will require a three week occupancy of the test stand by the specific vehicle being tested. There will be a requirement at Santa Cruz for GSE testing for which the present schedule does not provide test stand availability. The present contract includes a captive test vehicle in the Sentry configuration. Present plans at Santa Cruz do not provide allotment of test stand time for tests with this vehicle.

(6) Unless the AF Acceptance Team relaxes some of their test and data requirements, the three week schedule at Santa Cruz is considered impossible even with the use of unlimited overtime. Two vehicles can be worked on simultaneously at Santa Cruz with the present test stand-block house arrangement. Until the accomplishment of a change in the instrumentation of the block house, which allows quicker patch jobs between vehicles, there will be a minimum of four to five days between test stand firings. The effectivity for this change, which will allow test stand firings two days apart, is approximately five months away.

(7) To accomplish the proposed change in the propulsion system which incorporates dual burning provisions will require propulsion test vehicle testing at Santa Cruz under present plans.

(8) The Acceptance Team has imposed testing requirements in addition to those originally anticipated by Lockheed in programming the Santa Cruz operation. While Lockheed readily admits the desirability of these tests, there are certain areas which must be resolved if a three week schedule at Santa Cruz is to be attained. Lockheed apparently suggests a compromise whereby results of tests in Mod and Checkout are accepted in lieu of the Santa Cruz testing. Lockheed suggested the possibility of eliminating vehicle tests at Santa Cruz as soon as three successful UDMH vehicle firings are realized and to schedule subsequent testing on a sampling basis. Lockheed stated that to accomplish UDMH engine and dual burning tests appropriately, it would be necessary to accomplish these tests at least in part at Santa Cruz with PTVA's.

(9) In the schedule for Santa Cruz the vehicle will be installed in the test stand the day after it arrives and will remain in

the test stand until the day before it leaves. There will be a flight vehicle in each test stand (2) at all times to meet schedule requirements.

D. Launch Base Area:

- (1) Best estimate of time required for pad cleanup and conversion to accommodate vehicle configuration differences between flights with vehicles 1022 and 1018 is approximately 800 manhours or 22 days.
- (2) Lockheed stated that to the best of their knowledge all spare parts and equipments needed to repair the launch pad between flights two and three are presently available at Vandenberg.
- (3) Lockheed has not incorporated any design changes into the GSE or launch complex equipment to minimize pad damage or delay between launches as a result of information gained from experience with the Thor launches at Patrick or the demonstration flight at Vandenberg.
- (4) The activation of Pad 5 at Vandenberg is essentially proceeding to readiness date of 4-30-59. Some equipment is a little bit ahead of the schedule and some behind. There is no joint Douglas-Lockheed pad activation schedule which integrates detailed actions of both contractors to meet a 30 April readiness date.
- (5) The present plans at Lockheed are for a first flight in mid-May from Pad 5. This information was previously given to AFEMD by the KA Project.
- (6) A minimum time between firings due to personnel and equipment interchange problems was stated to be one week; however, two weeks is believed a more realistic period.
- (7) Recruiting is now being done to obtain additional people to man the Pad 5 operation. Technicians are being screened at Sunnyvale and Van Nuys for possible use on a temporary basis. It is forecasted that unlimited overtime authorization will be required at Vandenberg to get the two pads in operation. Problems have been encountered in scheduling manpower to perform specific jobs due to the two-contractor concurrent operation in areas where only one crew can efficiently work and in many instances where the commencement of work of one crew is contingent upon the accomplishment of the previous crew's work. This has caused a need for many hours of overtime and also many hours of idle time. Generally the work of Lockheed and Douglas crews has been accomplished with a minimum of friction between personnel.
- (8) The schedules outlined at Vandenberg are predicated on a six day week, considerable overtime and a limited second shift operation.

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(9) The entire Santa Cruz and Vandenberg schedules will require an approximately 48 hour work week for all personnel. In the event any difficulties are encountered, additional overtime will be necessary.

(10) There will be two complete sets of subsystem checkout equipments at Vandenberg similar to those equipments utilized in the Mod and Checkout area. They also have a complete systems checkout console at Vandenberg.

(11) In the event the tests at Santa Cruz are bypassed with any flight vehicle, the work to be accomplished at Vandenberg on that particular vehicle will not increase. There is no modification work on flight vehicles being accomplished at Santa Cruz. There are very minor modifications being accomplished at Vandenberg.

(12) The period between receipt and launch of vehicles at Vandenberg is an absolute minimum of six weeks. The interval between flights from any one pad is between four and five weeks. The AFBMD flight test working group at Vandenberg has estimated a minimum of 21 days from the time both vehicle and booster are mounted on the launch pad to actual launch.

(13) The original estimate of time required between receipt and launch of vehicles at Vandenberg was eight weeks, which has been cut to six weeks on the basis of the use of unlimited overtime. The cleanup of the launch pad and the checkout of the vehicle and booster on the pad can be done in part concurrently so that all work can be accomplished in a period of approximately five weeks. The time of three weeks on the pad and five weeks between launches is not cumulative.

(14) Lockheed does not concur in the requirement that detailed test objectives be furnished 75 days in advance of the vehicle launching to which they pertain. Lockheed further suggested that requirements of the flight test working group can be satisfied with regard to detailed test objectives with information concerning launch trajectory and range safety prior to actual completion of the detailed test objectives.

E. Recovery Operations Area:

(1) The recovery force, composed of C-119 aircraft stationed in Hawaii and C-121 aircraft dispatched from McClellan AFB in advance of the flight, are now in a state of readiness and will accommodate the scheduled recovery launches. The communications system is considered satisfactory.

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F. Tracking Network Area:

(1) Tracking and Acquisition Stations are now complete, equipments installed and checked out with the exception of one major item, which is the Acquisition Programmer. There are other relatively minor items missing, such as Delineators. This equipment is not vital to flight operation although it is important. Flight missions can be accomplished with equipment now available and installed in the T&A Stations. No difficulties are anticipated for handling flights between now and June with respect to T&A Stations. The operation of the T&A Stations does not require any specific period of time between launches of vehicles. In the event equipment breaks down or experience dictates equipment modifications, the T&A Station complex allows for the shutdown of individual stations while still accomplishing specific missions since stations are strategically located to provide overlap flexibility.

7. Conclusions:

a. The following assumptions were made and bear on the conclusions:

(1) Mod and Checkout Area:

- (a) Minimum of 13 days between acceptances.
- (b) Input from final assembly will continue "on schedule" with a gradual "beat-back" of modification and out-of-station installation of late equipment.
- (c) No major changes required due to flight experiences.
- (d) Improvement in the timely receipt of critical parts and equipments.
- (e) An orderly relocation to the Sentry building.
- (f) No restriction on use of overtime as required.

(2) Santa Cruz Test Base Area:

- (a) Continuous weather within "acceptable limits."
- (b) Minimum of seven days between acceptances.
- (c) No interference by test vehicles or GSE.
- (d) No unusual difficulties encountered during tests and acceptances.

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- (e) No restrictions on use of overtime as required.
- (f) Maximum span within the area of four weeks until the sixth article.
- (g) Every flight vehicle requires test at Santa Cruz.

(3) Launch Base Area:

15 May 1959.

one pad.

two pads.

- (a) Complete availability of Pad 5 on or before
- (b) Minimum of 4-5 weeks between firings utilizing
- (c) Minimum of 14 days between firings utilizing
- (d) No significant slippage of input.
- (e) No significant "changes" to vehicles or GSE.
- (f) Timely receipt of spare parts.
- (g) No delays due to:
 - 1. Weather
 - 2. Tracking equipment failure
 - 3. Late arrival of booster
 - 4. Booster or GSE problems

(4) Recovery Operations Area:

(a) No significant technical problems can be cited which would bear upon the realism of schedules.

(b) No major design changes in equipments will be required as a result of actual test operations.

(5) Tracking Network Area:

(a) No significant technical problems can be cited which would bear upon the realism of schedules.


(b) No major design changes in equipment will be required as a result of actual test operations.

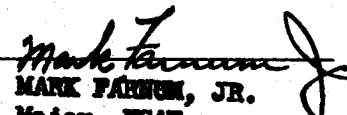
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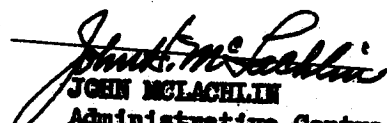
b. The conclusions stated generally are as follows:

- (1) Significant problems do exist in Areas A, B, C and D which are affecting the schedule.
- (2) There is little if any room in the schedule for major problems which may arise in any of the areas A through F.
- (3) No provision made for scheduling Midas vehicles through the various areas through CY-59.
- (4) No provisions are made for vehicle, GSE or propulsion testing at Santa Cruz other than tests on actual flight vehicles.
- (5) The details of the analysis made on the realism of schedules is contained in the attached chart.
- (6) It is to be noted that those flights scheduled near the end of a month are subject to slip to the succeeding month, thus additionally perturbing the projected schedule.
- (7) No attempt is made within the charge to this committee to recommend solutions to the problems which are quite evident in the content of this report.

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Flight Vehicle	Out of Final Assembly	Mod & Checkout		MFRD Forecast	Route Orig			Flight Data			
		In	Out		Out	Forecast	Best DMR	Forecast	Best DMR		
1019			9-19 (9-25)			10-30 (10-21)			1-21 (12-6)		
1022			11-4 (10-31)			11-29 (11-29)			2-23 (1-15)		
1018		11-6 (10-31)	1-18 (12-17)			2-28 (1-21)	2-20		3-19 (2-23)	4-15 4-15	4-2 4-2
1080		11-25 (11-18)	2-13 (1-15)	Computer Delivery		3-9 (2-8)	3-21	3-0	4-15 (3-23)	5-26 5-21	5-2
1023		12-6 (12-3)	3-6 (2-2)	1-14	3-15	3-30 (2-28)	4-15	4-8 H-10	5-20 (4-15)	6-9 6-11	5-26 4
1029		12-29 (12-17)	3-19 (2-13)	2-13	4-14	4-10 (3-11)	5-11	5-4 5-1	5-27 (4-25)	7-6 6-30	6-22 6-22
1025		1-16 (1-5)	4-3 (3-2)	2-18	4-27	4-27 (3-28)	5-26	5-19 5-15	6-18 (5-15)	7-19 7	7-4
1028	No tank	1-29 (1-19)	4-17 (3-16)	2-23	5-10	5-11 (4-11)	6-11	6-29 5-28	6-25 (6-15)	8-6	7-23
1051	2-12 (2-2)	2-13 (2-2)	5-2 (3-30)		5-23	5-22 (4-25)	6-22	6-29 6-1	7-16 (6-25)	8-29	8-15
1050	2-25 (2-16)	(2-16)	5-15 (4-13)		6-6	6-5 (5-9)	7-11	7-4	7-24 (7-15)	9-6	8-22
1052	3-2 No Tank	(3-2)	5-28 (4-27)		6-19	6-18 (5-23)	7-23	7-16	8-12 (7-25)	9-28	9-14
1054	(3-16)	(3-16)	6-10 (5-11)		7-2	(6-7)	8-11	8-4	8-25 (8-15)	10-12	9-28
1055	(3-30)	(3-30)	6-22 (5-25)		7-15	(6-21)	8-23	8-16	9-9 (8-25)	10-28	10-14

Flight Vehicle	Out of Final Assembly	Mod & Checkout		AFMD Forecast	Route Criz			Flight Date		
		In	Out		Out	AFMD Forecast	Best DMD	AFMD Forecast	Best DMD	
1033	(4-27)	(4-27)	7-7 (6-23)	7-23	(7-20)	9-11	9-4	9-22 (9-15)	11-12	10-28
1036	(5-11)	(5-11)	7-30 (7-8)	8-8	(8-3)	9-23	9-16	10-9 (9-25)	11-26	11-14

() Contractor's November scheduling to meet contract requirements.

As of 16 Feb 59

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Well, I would like to define our purpose. Colonel Evans established a small committee, composed of myself, Major Farnum of AMC and Mr. McLaughlin. What we would like to do in the next few days is to attempt to define exactly what our current position is affecting the program, so that we can properly determine a realistic ~~shift~~ and, hopefully, by some factual and objective discussion of the problem areas concerned, and know the exact status of the following areas: Production, Mod and Checkout, Santa Cruz, or the recovery activity, the tracking network, and also launch base problems. The material presented and discussions held, hopefully, will assist us in defining just what steps are necessary contractually to reflect the proper reorientation.

Now, we are on recording, so it will not be necessary to take notes. People who are not on the committee, but attending, feel free to ask questions of the speaker at any time; identify yourself so that the recording can be transcribed.

As John said, we will start with Production and then go along to Mod and Checkout problem area.

You are not scheduled in Santa Cruz today?

I didn't think we could make it, but we can do this. We are standing by ready.

Okay. We will go as far as we can today and it may be possible to get the Santa Cruz Test Base thoroughly covered and we have scheduled tomorrow a discussion of the recovery area, the tracking station network,

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and the problems in the launch base as they affect our current position. In other words, we can start out with the individual concerned with the Production status. Are we getting through?

Yes.

Name, Nick Malocovich. We present the production status. We have presented the production status up to where we transpose it to the Mod Center. The next bird over and its vehicle will be 1051, and it's approximately eight days behind schedule, and we have the rest of the Thor vehicles in process, through 1058. We are generally on schedule in Van Nuys on the Van Nuys assemblage, and it appears that we will under-run the hours down there something like 3200, at least I hope 3200 hours through 58 on the budget at Van Nuys. On the vehicles in process at Sunnyvale, Thor vehicles, again, we are approximately 4300 hours behind schedule, mostly because of the propellant tank problems. Some of you know that we had problems and needed analysis of things -- we had some soft areas. This thing was resolved, and I just got through talking to Mr. O'Green this afternoon and he says this is back in the picture again, but in addition to this, we had a leakage problem which ^{we} have unresolved at this time, and I am unable to get any BGD's out of factory C-1 so that we can firm up a recovery program.

In addition to this tank problem, we have had, and still have some chronic -- ten major items like the integrator, computers, horizon scanners, regulators, IRP's, programmers, transducers that have been plaguing us constantly and we have been unable to complete this work schedule, and consequently we are behind schedule. We just have established a task force to make a real attempt with the vendors serving the project and the different test people involved to eliminate these shortages, and I think that we will

in the next four to six weeks.

I have some charts here, typical charts of a bird or a vehicle, 1051 or 52, and I have 1053, if you want to see it, depicting the status. This bird -- the next one -- will be carted after bird 1051, and again, it's only held up by the lateness of the tanks. 1052 does not have a tank.

To summarize it, we are in pretty fair shape on tanks in production. Here's the picture of the schedule position. Start with Van Nuys -- I put on it "ahead of schedule," and "below schedule," and we are under-running a little bit, as I mentioned before. In the Bay area here in our assemblies, we have got this deficiency to make up, and if we had the tanks, some of the shortages, we could close this gap and bring back our input. Any questions?

Q Yes, this is Major Farnum. Did you say that you are essentially on schedule? How much time do you allow from delivery to final assembly to launch? In other words, what is the basis for your schedule?

A Well, our schedule -- you mean --

Q How far back do you go from launch to final assembly?

A I don't know that. You've got ten weeks in Mod and Checkout -- eight weeks in Mod and Checkout -- eighteen weeks.

Q These discrepancies that you have, the shortages, which of those would you consider pacing items? Some of these you can go on a station with? For instance, the horizon scanner, I imagine you could do -- could deliver this short to Mod and Checkout and install it there, but others, such as the tank, I imagine this holds up your assembly at that point, and then from that time, you have to wait for the tank, and this is time that can't be made up later.

A Yes, that's right. The tank would be that type of item. However, we have installed tanks in Mod and Checkout, but it jeopardizes

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schedule or causes some slippage there.

Q What are the pacing items that you have in assembling -- the items that you describe as short?

A I would say that the tank was the most critical. In other words, if we get the tanks, we can essentially complete the vehicle, and these other items, it is a matter of hours to install.

Q Do I understand that your schedule of final assembly is contingent upon availability of tanks?

A That's correct.

Q How does the schedule of tanks compare with your schedule?

A Like I said before, we don't have any schedule at this particular time, availability of tanks. We are short four tanks in final assembly and we are short one tank in Mod and Checkout, vehicle 1028. We have two tanks in rework at C-1 and will return this other one for rework and there are six new tanks in process at C-1, so there's 10 tanks in process.

Q Well, is this right, then, that we can't really determine what your schedule is on final assembly until we know the schedule of tanks?

A Until we resolve this tank problem which can be resolved momentarily, that is correct.

Q Would you go down through a schedule of where we stand today -- vehicles, tanks, assembly, and what we should get out of final assembly -- a forecast of tank recovery.

Q This is Major ~~ff~~ _____. Could I ask you to incorporate in that answer, as you go down vehicle by vehicle, your estimate of its current position, and how far you are from delivery to Mod and Checkout on the schedule?

A I didn't understand the question. We have tanks on 1051

and 1050, the next two vehicles, and if we get tanks within the next week, it is conceivable that there will be no additional slippage on the vehicle recovered.

Q You have a tank in Mod and Checkout, you say?

A Yes, 1028.

Q Can you take it vehicle by vehicle and give us their position at the moment with respect to what your schedule is to be at Mod and Checkout? For example, 1050, how far are you from delivery to Mod and Checkout?

A Well, 1051 was delivered to Mod and Checkout Friday, eight days behind schedule.

Q Can you review for us each of the items?

A 1050, 1051, 1051, 1050, 1052 and up?

Q Yes. 1028?

A 1028 is in Mod and Checkout now. (Aside conversation that was not clear enough to transcribe). This has a tank in here -- or has a tank -- we don't know if it's . . . now I don't know when we are going to get tank from C-1. They haven't been able to tell me. I called them.

Q Well, what is the scheduled delivery date on each of these vehicles to Mod and Checkout? Presuming you would be on schedule, when would you make delivery?

A When I should have made delivery? I should have delivered 1051 eight days ago. 1051 was originally scheduled 2/2; 2/16 on 1050; 3/2 on 1052; 3/16 on 1054; 3/30 on 1055; 4/27 on 1053; on 1056, 5/7; 1057, 5/25; 1058, 6/9; 1061, 6/23; 1062, 7/22; and we should cart this this Friday which will be -- this one should go a week from Wednesday; this one should go a week from Wednesday.

Q Would you identify, when you speak, the vehicle under the

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date you put down?

A 1051, we will transfer from Production to Mod and Checkout the 13th. 1050, we will transfer the 18th, a week from Wednesday.

Q A week from this Wednesday, or next Wednesday?

A A week from next Wednesday.

Q The 25th.

A On the balance of the vehicles, it is impossible to determine the actual date because I can't -- I am unable at this time to get availability on the tanks.

Q Major Farnum again. Just to make the picture complete, can you run another column there to indicate which Flight Vehicle these are?

A 1051 is 9; 50 is 10; 52, 11; 54, 12; 55, 13; 53 is 14; 56 is 15; 57 is 16; 58 is 17; 61 is 18; 62, 19.

Q This is Major Farnum again. What is your full time from the time you install the tank until you deliver it to final assembly?

A Well, normally, six weeks, but we can install a tank and have everything done - to final - in six to eight days. Actually, we can install a tank in as quick as three days.

Q You can do all the other work, you can index the mate, and so forth, without a tank?

A Yes.

Q So if we had tanks it would be possible to recover the schedule in about a matter of about four weeks. It isn't the fact that you lose -- every day you are behind in the tank schedule, you are behind in the vehicle?

A No. We do all the other work, the pre-mating, the soldering of wires; we do a lot of work -- some of them you have to redo, yes, sir.

Q This is Don Murphy. I guess what you are saying is that if

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you don't get tanks at least six days before it's due out of final, then you have to slip schedule?

A Yes, that's right.

Q If you get the tank six days before it's due out of final, then you can meet schedule?

A Yes, but then if I don't make that schedule, also, Don, I can get my people back on subsequent birds and if I get three tanks at one time, I can take it up in a hurry.

Q But you don't figure you have a critical problem yet, schedule-wise?

A Well, I consider it critical, and I also consider it critical to the degree that if we don't get tanks within the next two weeks, we will have to lay off about forty people, or move them off somewhere.

Q This is Major Z _____. I would assume, then, that you have already made eight deliveries to Mod and Checkout.

A The first eight flight vehicles have been delivered to Mod and Checkout, yes, sir.

Q This is Major Farnum. What is the status of 1024 and 1026?

A They are in Mod and Checkout, but . . . and the Navy have that status report.

Q I should think this would tie in with the manufacturing end of it. If they are going to rework these, they should have been 1061 and 1062, should they not?

A They are.

Q Well, haven't you started 1061 and 1062 into assembly in the component parts, fabrication?

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61 and 62 are for planning purposes on our schedule.

A That's right.

Q There has been no component parts on 1061 and 1062?

A There should be. The numbers are released only for planning purposes.

Q How does this fit into your flow time on this schedule? It says that you should have released these on the 13th of October.

A Are 1061 and 1062, identified as 1061 and 62, or are they identified as .26?

Q No, the point I want to make here is that 24 and 26 no longer appear on our schedule as numbers.

A No, but to meet schedule, the way I read that thing, you have to make the release of 13 October for 18 and 19 to meet the flight dates, but your _____ time being such that to fly these things in October and November, it required this release.

Q All right, I am not going to argue about it, but I don't understand the point.

Q My question is, once and for all, I would just like to find out what the status of these two birds is, whether any components have been released and are being fabricated, or haven't been?

This is Tram Pritchard. Our schedule would call for releases in January.

Q Is that the new schedule? Oh, I beg your pardon. This was when it was scheduled previously. Assuming that these were birds that started to be scratched, you are right, Mark. Now, I want to be fair, too, but I have repeatedly said, and you have repeatedly told me that these are for planning purposes and have no relation against the status of _____. But there were

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releasing against them, Mark, 21 and 22 . . .

A 1061 and 1062 haven't been released, and this is contingent upon the disposition of 24 and 26. This is in Mod and Checkout. This is a plan as a replacement for 24 and 26.

We have established for the record that there would be no termination against those. If there was termination, it would be against 1024 and 1026.

Are you satisfied, now?

Well, I wasn't looking for any particular answer. I would just like to know what the status was. Also, for 1019. If you feel that you can recycle 1061 and 1062, could you not also recycle 1019?

A Well, this is a point I guess we have yet to determine, Mark. Since these three we are talking about, 19, 24 and 26 are JP-4 engines and there is some pad rework involved in GSE because of the conversion to ME. It's a question of whether it's practical to convert back for JP-4 flights. JP-4 flights will not serve our objectives from a flight standpoint, is this right, Fred?

A That's correct.

-- downstream, they won't. In other words, they couldn't be substituted for a downstream ___ flight from a practical standpoint.

Q Well, with this new program, and the possible cancellation of four vehicles, you are going to have to make a determination whether to recycle these three birds as the 12th, 13th, 14th and 15th, or to scrap them, is that right?

A Right.

Q If we pass those three, 13, 14 and 15, what is the status of the report of manufacture on those? Fourteen, Fifteen and sixteen.

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Q Can you tell us now, then, the status of those, 14, 15 and 16?

A No.

This is Murphy. I guess it's only a matter of getting to it, Mark. Do you have feel, Nick, or Bill, for how long it might take to draw up this information? What we are looking for here is a set of statistics, what's the cost of completing the vehicle and the associate cost of reworking the pad back to JP-4, and other changes, or conversely converting it to UDMH, against the cost, also, of completing 14, 15, and 16.

If you don't make this decision soon, we will have made it by default. The other birds will have been built. Time's running out.

Today's what, Wednesday? We will have it in for you by next Wednesday at the latest. We will look at the comparison cost, completing them as they are, converting them to UDMH, as well as the cost to complete 14, 15 and 16.

Fred?

Q The question that will have to be answered in making that determination is whether or not we are going to _____ these flight objectives against the program which is reoriented, in which we do not fly the last four birds, and if they are going to meet the flight objectives of the program of the first fifteen, we are going to have to know what the payloads are going to be, and I think we can almost be guaranteed right now that they will have to be UDMH flights or we can't do it.

A I guess what you are saying is that in the nineteen flight program versus the fifteen, four payloads, or four flights, drop out?

That's right, and I think we can be assured now that the payload weight that we are talking about in our program, are such that we couldn't entertain the use of JP-4.

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Well, I think that this is probably the net result of study, but I personally believe that we are obligated to come up with a figure on all three ways.

Are you saying that this should be the last three birds of a fifteen bird program, then? Also as one of the considerations?

Yes.

That would effect where we stand on the schedule. If by Wednesday, we could have a determination as to what four payloads, or what four flights drop out, it would help us to see whether or not there are some objectives that are later downstream, or these three converted birds, for example, converted birds that meet the objectives required.

This is Haig. Has the Air Force declined, or is it necessary that the Air Force decline what four flights will be eliminated --

Yes.

-- or understood that they will be the last four?

Well, we have to be told either that they are the last four or they're some other four.

This is Major Z _____. I think what you really want to know is which payloads are sacrificed in the cutback to fifteen flights.

That's right.

Also, you want to know where they fall out of the schedule?

We have some more instrumentation checkout equipment in process down in Van Nuys that should be appearing right around the first of March.

Major Zelenka: You are trying in the stand looks like three to three and a half months. Is there any action that should be taken to assure that that time? stand

A: Yes, there is one very good action which would be to get the parts of the vehicle available to start with. I would like to point out that 1018, in spite of what I said, went out 41 days after I got my hands on the computer. That was a pretty buggy trip.

Well, recognizing that as a fact, that you would normally have ~~these~~ these shortages, is there anything that can be done to shorten the time that you have these things in mod and checkout?

If I knew of anything, it would have been done, believe me.

Well, I think the answer to Maj. Zelenka's question, we are looking at ^{one of} seven-day weeks, and third shifts, and things like that, past the time scale, ~~once~~ we have solved the equipment availability problem.

What type shift are you on now?

Two shifts in guidance and instrumentation.

This is . Could you indicate on there from 1020 and down when the guidance computer is available, or are you forecasting that?

I'd have to go back to the records to do that for you accurately.

Let me ask you this question. You consider the guidance computer a pacing? item through mod and checkout?

At the moment, yes.

Tram, do you have some figures on when you figure the computer was delivered?

^{for 1020}
The computer was delivered on 12-17.