January 15, 1962

000162

OFFICE OF DIRECTOR

MSFC ROUTING SLIP

	CODE	NAME	INIT.	☐ ACTION	☐ INFORMATION
1	Mr. G.				
2					
3					
4					

REMARKS

Note Hoelzer's item 3 - this is the same machine FMO wants. The thing that is working so well for LOD is similar to FMO's problem.

CODE	NAME	DATE
	Hewby	1-20-62

MSFC - Form 495 (Rev. February 1961)

000163

B1-16

NOTES 1/15/62 CONSTAN

PERSONNEL

Thirty positions have been filled or committed. Key personnel have been selected.

RENOVATION AT MICHOUD

Office Building: Work suspended pending installation of duct work.

Engineering Building: No work due to extreme weather conditions.

Manufacturing Building: Work continues on plumbing work on authorized toilet area. Checking out and minor repair to 16 Fan Houses approximately 75% complete.

Boiler Plant: Checking out and repairing equipment continues, approximately 80% complete.

GENERAL:

No change due to weather conditions.

RIFT

2.30 G
4.30 Meeting scheduled January 16, 1962 with Source Evaluation Board - Phase I Review.

A request for the transfer of the Michoud property has been initiated by NASA and submitted to GSA with advance copy furnished BOB. NASA Assistant General Council attempting to expedite paper work through GSA and obtain GSA sign off early this week. The request then goes BOB for final approval. It is estimated that the transfer of the Michoud property will be effected about January 27, 1962.

Shipments of office furniture have been made to New Orleans, approximately 400 more desk, chairs, tables, etc. are being shipped from GSA on or before 25 January 1962.

Fifteen sedans were furnished Mason-Rust, the Support Services of 30 days begining 26 December 1961.

Procurement Request was initiated to P&C on 11 December in the amount of 1.5 for negotiations with Chrysler Corporation for work and services in connection with engineering and production of the Saturn S-1 stage.

Procurement Request was initiated to P&C on 27 December 1962 transmitting a scope of work covering the Saturn S-1C stage. Fund citation will be made prior to completion of negotiations with the Boeing Company. Request for proposal issued to Boeing on January 3, 1962. Proposal received from Boeing 12 January 1962. As of this date P&C has not established a date for negotiations to begin.

MSFC is still awaiting the reprograming from R&D to construction of facilities, $460,000 additional funds required to continue the renovation contract at Michoud.

The renovation contractor has submitted a proposal for additional work at Michoud. The proposal has been evaluated and P&C has completed negotiation with the contractor. The contract cannot be executed until approval of approximately $465,000 for this project is received from NASA Headquarters. The delay of getting the work included in proposed contract is delaying the orderly activation of the plant and is becoming critical. Efforts to obtain Headquarters approval is continuing.

A plan indicative of the entire scope and timing of plant modification and new facilities at Michoud is being prepared.

George C.

Is the Mason-Rust contract now off the frying pan? How was the dispute settled?

B

NOTES 1-15-62 DEBUS

B 1-16

1. Launch Operations Organization: As a follow-up on meeting relating to the discussions you and I had in Washington 20-21 December on this subject, Seamans visited the Cape on January 5 for more discussion.

Pertinent Points:

a. Headquarters was considered an office under Buckley (Instrumentation and Data) to be assigned at AFMTC. This was to be Plan III or the "Retired Admiral."

b. I convinced Seamans that it could not work and that Plan I was most logical. He made no commitment, but promised early decision after Holmes visited the Cape, and you are back from your trip.

c. Seamans also talked to Davis (AMR). Prior to this I had talked to Davis and he played the organization strictly down our lines of thought.

2. Community Relations: Paul Siebeneichen has reported to duty at LOD to fulfill this function.

3. Nuclear Staff Advisor: Col Roger Ray was recalled by the Army for six months. I am going to obtain Major Hock from AF to take care of this area.

4. Master Plan: Davis and I have established a master planning effort which will utilize both our organizations to the fullest possible extent in planning Facilities, Instrumentation, and MLLP effort. Seamans was interested in this and seemingly liked the idea.

5. Centaur Launch Operations: Progress has been made with Convair on this program but it has taken considerable effort to get them to correct their deficiencies despite the concurrence of Dempsey, Davis and Ehricke, to go along with LOD recommendations and procedures.

6. Titan II and III: The planning by other elements of NASA and DOD has led to an impasse. The required use of nitrogen tetroxide has imposed severe limitations on weather and wind conditions for fueling as well as launch because of toxicity. Also severe interference with adjacent pad activities which could disrupt other programs. We are looking into the problem because of interference and holding a check on desires of DOD to site Titan III in the new area.

7. Visitors: Of the many VIP who have required briefings during the period, Congressman Anfuso spent several days with us getting briefed on NASA operations here. Rocco says he was much impressed. He also spent time with AFMTC.

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B 1-16

NOTES - 1-15-62 - GEISSLER

1. SA-1 FLIGHT EVALUATION REPORT: The SA-1 Flight Evaluation Report has been completed and distributed. ✓

2. SATURN OPERATIONAL FLIGHT CONTROL: The study contract for Saturn Operational Flight Control was awarded to RCA. The first Steering Committee meeting (Chairman: Dr. Debus) with RCA was held in PAFB on December 16, 1961. Contract work will start immediately and last approximately one year. ✓

3. MEETING ON ATLAS-AGENA WIND CRITERIA: Meeting was held between representatives of Convair, Lockheed, L&M Vehicle Office, Aeroballistics & P&VE to consolidate one set of specialized wind criteria for use in control and structural studies of the Atlas-Agena vehicle in connection with the OAO (Orbiting Astronomical Observatory) and EGO (Eccentric Geophysical Observatory). The criteria agreed upon provides for a maximum relaxation of design wind conditions - a minimum of 95 percent probability of launch for any month but restricts launch azimuth and launch site to Cape Canaveral, Florida. These criteria are being developed by M-AERO-G. ✓

4. ATLAS/CENTAUR PERFORMANCE STUDY: "Atlas/Centaur Performance Study", Aeroballistics Internal Note #1-62, was completed. This study considers various vehicle combinations of Atlas and Centaur. The report presents general curves that may be used to obtain performance information for the two- or three-stage vehicles. Material presented makes comparisons between various two - and three-stage vehicles possible. ✓

5. FY-63 FACILITY: Word was received this week that this Division's FY-63 facilities were cancelled by the Bureau of the Budget. Very high hopes were placed on approval since this Division is the only major Division within Marshall to be without a centralized engineering and laboratory facility. This action, without the usual cross-exchange of technical information and appropriate discussions, is contrary to customary practices. In view of the fact that this Division's construction budget was a very small part of the total requested by the center, it is difficult to understand the elimination of the facility for budgetary reasons. Our existing gas dynamic facilities are crowded into inadequate surroundings and lacking in sufficient utilities (high pressure air, vacuum) to cope with future developments. Adequate facilities and modern equipment must somehow be provided if we are to attract and keep the highly qualified scientific personnel required by our research and development missions. Without facilities, our capabilities will become stagnant. Any requests for '64 construction funds will be futile without the missing explanation by Washington on the disapproval of '63 funds.

Ernst J.

BAB cancelled this (and one other) construction request unilaterally, and Mr Webb featly refused a Reclama, because he felt in NASA's (and MSFC's) overall request we had fared quite well. We'll try again in '64, please lay good good groundwork.

B

NOTES 1-15-62 GRAU

B 1-16

1. SA-2 POST STATIC CHECKOUT: Booster was released from the Mechanical leak and functional test area to the Performance Test area on January 11, 1962. Engine H-1032, position #1 was removed from booster to correct leakage problem and re-installed. Vehicle is on schedule at this time.

2. QUALITY CONTROL COVERAGE AT WEST COAST CONTRACTORS: Word has been received via WOO that the Western Contracts Management Region of the Air Force has officially requested support from headquarters in supplying some 60 additional engineers and inspectors for our programs at Rocketdyne, Douglas, Aerojet-General, and General Dynamics/Astronautics. Result?

3 TRI AXIS TURN TILT MECHANISM: A feasibility study has been completed on a tri axis turn tilt mechanism to be used during the checkout of the Instrument Unit. Evaluation of this study is now underway.

4. CENTAUR PROGRAM: Problems continue to arise in the intermediate Bulkhead with serious leakage occurring in the Propulsion Test Vehicle, and indications of extensive wrinkling of skin on disassembly of the C-2 tank. The Center is awaiting an answer from Convair on a request to incorporate several improvements in the typical flight vehicle checkout sequence.

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NOTES 1-15-62 HAEUSSERMANN

1. S4B DESIGN REVIEW MEETING: A two day meeting was held this week with representatives of Douglas with the total attendence of approximately 80, representing Douglas, Astrionics, Aeroballistics, Computation, Quality, and Test Division. Following a general review of the Douglas Design Study Effort, splinter meetings in the areas of instrumentation, electrical networks and power supply, control systems, automatic check-out, electrical GSE, and structural design of the forward inter-stage area to accommodate Astrionics Division equipment. Similar meetings were held in other divisions covering matters pertinent to their participation.

Walter H.
Please see me on this, soon.
B

2. STATUS OF FLIGHT SIMULATION FACILITIES: Proposal Number 1 (Removal of Existing Roof Structure - Partial Penthouse) as suggested in M-ASTR-IN-61-26, December 20, 1961, has been accepted and construction plans are now being formulated. Funds in the amount of $49,000 have been provided from R&A funds by Technical Services Office. At present all design criteria has been finalized. Work order has been placed by Computation Division. Earliest possible completion date of facility is July 1, 1962. The revised issue of the subject report does not contain any technical changes.

3. CONTROL SYSTEM FOR C5: A prelimenary plan has been drafted and its acceptance and implementation will be discussed with M-SAT during the week of January 15.

4. MECHANIZATION OF THE GUIDANCE TERMS: Studies are continuing to determine method of mechanization of the term $\frac{\dot{M}}{M}$ required for the guidance equations. Lack of this definition has prevented the finalization of the computer processing and other associated vehicle equipment, e. g., P. U. system.

5. STATUS OF AUTOMATION BOARD: The technical staff office of the Board became operational on January 2, 1962. The sub-boards are now functioning under temporary chairmen.

6. TDY ITINERARY FOR THE WEEK OF JANUARY 15. I will be at GE/Schenectady on the 16th for discussions on the cryogenics work being conducted by Dr. Buchhold (Other participants in this meeting include Dr. (Commander); Kelley and Kanter, NASA Headquarters; and representatives from JPL, Langley, and the Navy.) On the 17th will tour the Research Laboratory. On Jan 18 will visit EP for discussions on the development of the ST-124. Fritz Weber, representing this division, will be participating in an APOLLO Guidance and Navigation Meeting at MIT January 16 and 17.

NOTES 1/15/62 Heimburg

B 1-16

1. SAT-22:

SAT-22, scheduled for 1/11/62, was postponed due to inclement weather and has been rescheduled for this week.

2. RIFT FACILITIES:

Messrs Tessmann and Carrington attended a meeting at SNPO, Germantown, Maryland, where the budget for RIFT facilities was finalized.

3. F-1 ENGINE TEST STAND:

Messrs Tessmann and Carrington attended a meeting at NASA Headquarters where comparative costs and operational information on an F-1 Engine Test Position in either the West Area or the West Side of the present tower were presented. No decision was made. The above presentation was made to Messrs Tischler and Diaz and Col. Berry. Mr. Tischler expressed the opinion that the final decision should be made by Dr. Rees. Mr. Rosen did not bother to attend this meeting.

Good! When?
B

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NOTES 1-15-62 HOELZER

B 1-16

1. MSFC-ADPS WORKING GROUP: On January 5th presentation was made to the Board on the need for overall integrated ADPS system for MSFC, with the result that Mr. Rees asked me to establish an ADPS Working Group to study and solve our ADPS problems. I have asked Mr. Maus to act as co-chairman of this group with me and he has accepted. We are at present trying to find members for the group from each division and office. We will probably hire a contractor to do most of the detail work. I expect to report further on this at the next Board Meeting.

2. REPLACEMENT OF 705 COMPUTER: I have instructed my ADPS Branch to initiate a study of the available machines on the market to replace our 705 computer because there are machines today that will produce much more computing for the dollars we are paying for the 705.

3. LOD 1401 COMPUTER: Utilization of our small commercial type computer at the Cape is progressing excellently. A number of the major applications are already running on the machine and LOD personnel have several more waiting to be put on it.

4. PCM FACILITY: The contract has been given to Dynatronics Inc. for $375,000 to provide a Digital Data Handling System. Its chief feature is PCM telemetry playback station which will synchronize its rate to that of the received PCM and convert these codes to the standard computer formats. The system also includes facilities for mass analog playback of digital information either as output of the converter or as output of the general computer.

5. AEROBALLISTICS ANALOGUE COMPUTER: High speed repetitive Analog computer for Aeroballistics was delivered by GPS Instrument Co. Dec. 11, 1961. It cannot be checked out because wiring has not been installed in building 4484 for the computer. Original request for wiring was submitted Aug. 1, 1961; funds were approved Nov. 15, 1961 by the Facilities Review Board. Technical Services Office reports that a transformer must be procured and installed by Post Engineers; letter requesting this work did not leave TSO until Jan. 15, 1962.

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NOTES 1-15-62 Koelle B 1-16

1. FPO STUDY CONTRACTS

Approximately 30 study contracts are to be let during the remainder of this fiscal year, based on the funds released in the 3rd Quarterly Review. Some 20 work statements are in the final draft stage. The first requests for contracts are now with Procurement and Contracts. About 40 per cent of these 30 contracts will be negotiated as follow-on or sole-source contracts; the rest will be awarded on the basis of open bid competition. To what degree do you want to participate in this effort?

a. Do you want to see and approve each work statement?

b. Do you want to see only those work statements in which I feel you might be interested?

c. Do you want to participate in the selection of contractors?

d. Do you want to limit yourself to attending the final contractor presentations?

e. Do you want to restrict yourself to special cases which I cannot solve and hear only about highlights through these notes? (This is the minimum time requirement for you!)

H.H.K. suggest we discuss the whole complex thoroughly once. (1 hr). Then I won't interfere in detail implementation. Let's do that soon. B.

2. NOVA - Action Item

We are now preparing an action plan concerning our NOVA efforts (spending approximately two million dollars in the next eight months) in order to produce a firm NOVA configuration and development plan.

a. A plan for the $2.3 million FY 62 study phase (plus facility money)

b. A brief development plan showing how the 2.3 fits into the overall program

c. A Marshall management proposal

d. Desired Marshall in-house support during the study phase

Dr. von Braun: this is already on your calendar for Jan 22 2:00-4:30

We should be ready to present our proposal to a special "Technical Board Meeting" on or about January 22 (preferably afternoon) in the hope that this meeting will produce a Marshall position, which you could present to the next Management Council meeting in Washington late in January. Would the 22nd of January suit you (the meeting might last 3 to 4 hours)?

O.K. B

3. ADVANCED DEVELOPMENT PROBLEMS - Action Item

It seems to me that it is about time to propose to Mr. Gilruth a second meeting on advanced development problems, similar to the one at Langley. However,

I'll talk to Lium B

the meeting should be better prepared in order to produce more "hard" agreements. Dr. Kuettner seems to be the right man to prepare this meeting for sometime in February.

4. INSTRUMENTATION - Action Item

Already under way! S IV B has no guidance slice!

It seems to me that we are going overboard with our "instrument package;" we seem not to worry about the weight. At this place a one-pound "instrument package" is one pound of payload. While this seems to be all right for the two-stage C-1 to orbit, it hurts for the three-stage C-1 to escape. We have to decide whether another approach or philosophy for the three-stage C-1 is in order. I would suggest that the SATURN Systems Office give a presentation to the Board on this subject. Somebody has to apply judgment as to what is a "must" and what is "nice to have."

on Calendar

5. BOEING SOLID STUDY

The final review on the Boeing solid vehicle study will be held on January 18 at 9:00 a.m. A summary presentation and discussion has been set up for you from 11:00 to 12:00 in the Director's Conference Room.

6. STL MEDIUM CLASS VEHICLE STUDY

30-2:30

The final presentation of the Medium Class Vehicle Study by STL has been rescheduled for January 26, due to the AMR activity on January 23.

7. ORBITAL OPERATIONS

9-10

30-3:30

A presentation will be given by Chance Vought on January 24 at 9:00 a.m. on their orbital operations contract. Sperry Rand will give a review of this work in the area of astrionics on January 25 at [redacted].

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NOTES 1-15-62 KUERS B 1-16

1. SA-3: The SA-3 Booster was delivered to Quality Assurance Division on January 8, 1962, for pre-static checkout. Due to incorporation of numerous modifications resulting from the SA-1 Flight, the Booster was delivered two weeks later than originally scheduled.

2. SA-4: The final assembly of SA-4 began on January 2, 1962, as scheduled.

3. C-I Budget: An allocation of 4.6 million dollars has been received by this Division to cover the C-I Program for the remainder of FY-62 based on the revised schedule dated January 2, 1962. This amount is considered adequate, though marginal, provided there are no design changes or addition of components other than those provided for in our budget.

4. Facilities: Rust Engineering Company of Birmingham, Alabama has been selected as the architectural engineer for the Hydrostatic Test Tower and contract negotiations are underway. The design criteria has been finalized in such a way that this facility could also be used for NOVA type containers measuring approximately 50 feet in diameter. Since the last report period, the requirement for this Tower was reviewed again by Washington and reapproved. Washington also officially renamed the project, " Addition To Building #4707 For Vertical Structural Assembly".

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5. Visitors: Mr. and Mrs. Charles Bartlett, White House Correspondents, Mr. J. L. Golden, and Mr. and Mrs. B. H. Golden, personal friends of President Kennedy, visited this Division on January 9, 1962. I escorted them through Bldg. #4715, our Electrical High Energy Forming Facility and the various potential applications in space were explained to them. They were also shown the Assembly Hanger and the Check-Out of SA-2 at Quality Assurance Division. During the entire visit, they showed extreme interest in our operations.

No NOTES have been received from M-SAT, Dr. Lange, for 1-15-62.

NOTES 1-15-62 Maus

B 1-16

1. ATLAS/AGENA FLIGHT TESTING: RCA recently presented to George Low's people the MSFC Atlas/Agena Automatic Flight Test Program. They were coldly received.

on Calendar
9-10:30

2. STL FLIGHT TEST PROGRAM: STL is to give MSFC a presentation on 1-18-62 relative to a comprehensive flight test program which takes account of the existing Gemini Program (Mercury MARK II). Dr. Thiel has outlined this program for Milt Rosen. The ideas were warmly received.

3. ORBITAL OPERATIONS REPORT: Status report indicating MSFC thinking and plan of approach in Orbital Operations Program will be presented by Joe de Fries in next Board Meeting January 19, 1962.

4. GEMINI PROGRAM: An MSFC position paper dealing with MSFC's portion of the Gemini Program is presently being prepared for your signature. The paper proposes to make the Agena B target of the Gemini Program as closely as possible a model of the S-IVB/R-1 using actual Saturn guidance and control hardware; furthermore it proposes that MSFC takes full responsibility over this part of the program in order to obtain test data and experience on S-IVB/R-1 rendezvous hardware. The position paper contains these chapters: Summary, Justification, Technical Description and Management.

5. MSFC ORBITAL OPERATIONS SCHEDULE: A MSFC Orbital Operations Schedule has been developed based on guidelines developed in the Technical Board Meeting December 13, 1961.

6. DEFINITION OF LUNAR LANDING STAGE: The latest Apollo work statement dated December 4, 1961, defines the lunar landing stage as part of the spacecraft and under the cognizance of MSC.

7. NOVA: Based on discussions with Headquarters relative to their requirements for releasing $2.3M in FY-62 NOVA funds, a Summary Development Plan and a Work Statement for a 6-month predevelopment study contract are being prepared by the Lunar Program Planning Committee and Future Projects Office. Draft copies of these documents will be available for review by the Committee on 1-16-62.

NOTES: 1-15-62 MRAZEK

A negative report is submitted this week.

NOTES 4-15-62 Rudolph

Negative.

000177

NOTES 1/15/62 SMITH

B1-16

PROGRAM BUDGET

MSFC has received an order and funds in the amount of $2.4M to provide Atlas vehicles for Project FIRE.

MSFC programs have been realigned to conform with decisions made at 3rd Quarter program review with Office of Manned Space Flight.

Action underway by MSFC to request additional FY 62 Support of Plant funds totaling $4.035M. This increases the present approved SOP program to $31.00M exclusive of reimbursable customer requirements.

In the first week of January 1962 LOD was issued a program and financial operating plan that enables LOD to operate programmatically and financially as a sub-center of MSFC. Monthly program and financial reports from LOD will be integrated with MSFC reports to NASA Headquarters.

Calendar 9:45 12:15 to 1:30

PERT

A meeting will be held in the Director's conference room on January 16, 1962 at 9:00 a.m. regarding our PERT efforts at Marshall. The principal objective of the meeting will be to review and evaluate the schedule delays being revealed on the SA-5 PERT network and to discuss our future efforts in the PERT area. Details that would have been covered in this note will be covered in the meeting to which you have been invited.

NOTES 1-15-62 Stuhlinger

B 1-16

1. SUPPORTING RESEARCH: The funding programmed for the 3rd and 4th Quarter Launch Vehicle Technology Program has now been authorized by Headquarters. A total of 8.115 M has been made available for the FY 1962 LVT Program, not including the Future Projects Office's funding. ✓

2. SATURN WATER DUMP EXPERIMENT: A teletype signed by Newell and Rosen has been received citing funds and authorizing preparations for the release of the SATURN water ballast at apex. This preparation has been proceeding under Configuration Control Action #160. An answer to the Newell-Rosen teletype, establishing the MSFC plan for implementation of the project is being prepared for your signature. The code name "High Water" has been proposed for the project. Flight Number what?

S

3. ELECTRIC PROPULSION: Sixteen electric propulsion contracts have been transferred to the Lewis Research Center. The major ion and arc engine development contracts and the RCA contract for the flight capsule are included in these contracts which have been transferred. An additional seventeen contracts are ready for transfer, except for final closing actions, and we are waiting for authorization from Mr. I. R. Schwartz in NASA Headquarters to proceed with the transfer. ✓

4. ORBITAL OPERATIONS: An Orbital Operations Program is being prepared by RPD for submission to Headquarters. Submissions have been requested from the divisions on the Standard Form 399. As per this date a total of 89 projects have been proposed totalling approximately $9,718,000. The program is presently being checked for completeness and duplication; it will then be edited and reproduced for discussion with Hqs. representatives. Dr. Lundquist and Mr. Frank Williams are planning to handcarry the program to Hqs. around January 25. I'd like to see it before submission, if possible. B

It is suggested that the name "Vehicle Rendezvous Technologies" be used instead of "Orbital Operations", because Vehicle Rendezvous Technologies is much easier to defend for MSFC than Orbital Operations. ✓

5. LIAISON WITH HEADQUARTERS FOR SUPPORTING RESEARCH AND TECHNOLOGY PROGRAM: The reorganization of NASA Headquarters resulted in a substantial change in the handling of our supporting research program at Hqs. In the past, there was one person in Hqs. who was responsible for those supporting research projects which are coordinated by RPD (Dr. Harvey Hall during recent months); in the future, there will be at least five offices, and several divisions in each of these offices, with which we will have to negotiate our research program. Recognizing the need for a strong and continuing relationship in the area of supporting research and technology with all these segments in Hqs., Research Projects Division has established "Principal Contact Persons" for the various Hqs. offices, and also for "Vehicle Rendezvous Technologies", and for the University of Alabama Research Institute. Details of these nominations will be submitted to you soon. ✓

January 22, 1962

NOTES - 1-22-62 - GORMAN

B 1-22

1. S-II FACILITIES - Some difficulty has arisen with respect to use of research and development funds for the purpose of design and construction of S-II facilities --- we failed to initiate action to keep the Congress advised of NASA's intention to use R & D funds for construction of such facilities. The Western Operations Office has requested a stop-order on work under way until the Congress has been appropriately advised. You may recall that North American had been given a letter contract for about $500,000 and in turn had let two sub-contracts to architect-engineers. I hope to get this "squared away" this week.

2. COMMUNITY SUPPORT - During your absence, I named Marion Kent as my assistant for Community Support Activities. His counterpart in NASA Headquarters is Mr. Carroll Towne, who is officially joining NASA as of today, January 22. Kent's duties will be to coordinate Marshall's interest in all community support activities in the states of Mississippi, Louisiana, and Florida.

3. UNIVERSITY TRAINING - Tulane University has made a "pitch" for a contract with Marshall to provide educational programs for Chrysler and Boeing personnel and to provide supporting research to the Michoud operations. I do not believe we can work with a single university in the New Orleans area, but rather need to promote an association of universities so as to avoid political problems. I am working with the Washington office on this.

4. RESEARCH INSTITUTE - Meetings are planned for this week to develop a program under which the Alabama Research Institute would actively support the MSFC activities.

H.G. Please tie Dr. Stuhlinger in on this.
B

Meeting held 1-23-62 in Mr. Gorman's office w/ Dr. Stuhlinger, Dr. Lucas, Dr. Ludquist. BK

B 1-22

NOTES 1/22/62 CONSTAN

PERSONNEL

A plan for the movement of Michoud Operations personnel to New Orleans is being prepared.

MICHOUD PLANT TRANSFER

On January 15, the GSA Administrator forwarded to BOB a letter requesting BOB recommendations regarding reimbursement or nonreimbursement in connection with the transfer of the Michoud facility. BOB representatives have assured NASA Headquarters that BOB should complete the processing by Jan 22. MSFC General Council has indicated that it is possible that the transfer can be accomplished by Jan 26.

REFERENCE NOTES 1/15/62 CONSTAN (See attached)

The dispute by contractors of the New Orleans area relative to the selection of Mason-Rust as the Support Services contractor appears to be settled.

CONTRACTING OFFICERS REPRESENTATIVE DESIGNATION

Wilbur S. Davis, Contracting Officer appointed George N. Constan as Contracting Officer's representative for contracts NAS8-2576 (Chrysler-Saturn S-1) and NAS8-4004 (Mason/Rust Support Services at Michoud).

Tool and special equipment lists submitted by CSD (Chrysler Space Division) are being reviewed in support of P&C pending negotiations for a Facilities Contract.

A facilities plan was submitted to OTS in support of their preparation of a presentation on MSFC facilities requirements to NASA Headquarters.

City of New Orleans electrical inspectors informed Mason/Rust that it will be necessary to have city inspectors examine all electrical installations in the Michoud plant for compliance with city code. Problem referred to MSFC Chief Counsel.

RENOVATION AT MICHOUD

Office Building: Work stopped for over two week pending authorization by P&C to approve work orders and pending Headquarters approval of additional C of F monies.

Engineering Building: Roofing approximately 45% complete. Completed room for telephone equipment.

Manufacturing Building: Plumbing of Bradley wash fountain began. Fountain bowls are, in general, in poor condition. Painting of asbestos shingles began. Checkout and minor repairs to 16 fan houses in process approximately 80% complete.

Boiler Plant: Checking out and repairing equipment approximately 80% complete. Boiler being acid cleaned preparatory to putting on line.

General: One chilled water pump put in service for testing purposes. Minor repairs and operational checkout of sub-station in process approximately 85% complete. Ground storage water tank being repaired. New roof being constructed on elevated water tank.

Again,
Please mark reference.
(Mason-Rust) GCM 1-23
For example: Q

B 1-16

NOTES 1/15/62 CONSTAN

PERSONNEL

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RENOVATION AT MICHOUD

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George C.

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B

George,
It would help if the area of interest on 12/18 NOTES were marked. JCM 1-17

NOTES 1-22-62 DEBUS

B 1-22

No Notes received from Dr. Debus this date.

000184

B 1-22

NOTES-GEISSLER - 1-22-62

1. SA-5 PAYLOAD GEOMETRY: A visit by Aeroballistics Division personnel to Langley was made to obtain latest data on nonstationary aerodynamic effects of Apollo payload on Saturn (SA-5). Fairly extensive tests (including elastic models) have been made and do not indicate the existence of a critical flutter problem so far. However, without further tests using larger scale models, over a wider Mach number range and with final geometry, the possibility of critical aerodynamic excitation of the control system cannot be entirely excluded and represents a risk which we would not like to accept as is. The severity of this risk is quite dependent on the stiffness of the escape tower, which is not yet defined. Langley Research people agree with our evaluation. MSC is not willing to agree to any action on partial shroud design even as back up. We are trying to get another expert opinion from Ames personnel. We recommend to continue with further large scale wind tunnel test work, and provide either a partial shroud design as back up or obtain a decision from Mr. Holmes that a calculated risk of not completing SA-5 primary mission due to aerodynamic excitation from Apollo payload is acceptable.

2. SA-1 BOOSTER DISCOLORATION: Investigations have revealed that the discoloring of the Saturn SA-1 booster was caused by flow separation during the latter part of the flight. A report on analysis of photographic coverage, from a flow point of view, is being prepared. → Convair had similar experience with their 990 Jetliner! B E.G.

3. DYNAMIC TESTING: The proposal for full size component test (dynamic and static) of the proposed water bearing for the dynamic test tower, was presented to and accepted by representatives of the cognizant divisions.

4. S-IVB MID-TERM REPORT BY DAC: During the week of January 10, 1962, DAC presented their mid-term status report of preliminary design of an S-IV B stage. To date DAC has considered one basic structure for all missions with the flexibility of adding externally mounted insulation and meteorite shielding dependent on the mission. The airframe structural design is based on the 30 day mission. DAC's mid-term report considered only the connecting mode in the orbital operation scheme. DAC was instructed to determine the design penalties for the short coast mission resulting from the basic design being laid out for the longer stay time in orbit. The conclusion could well be that two air frames should be designed, one for the short stay time mission and one for the 30 day mission. Additionally DAC should include the fueling mode of orbital operations in their study. MSFC pointed out to DAC that a clear definition of the orbital operation mode and mission profiles can not be furnished at this date. The orbital operation problem is under investigation by MSFC and definite ground rules for S-IV B design will be furnished at the end of MSFC's study, which is expected to take from one to three months. Very good! B

5. CENTAUR TO BE FITTED WITH EDCLIFFE α-METER: The Centaur vehicle will fly with the Edcliff angle of attack indicator for purposes of flight load measurement and possibly later inclusion in control system. Evaluation and wind tunnel testing for this indicator is being provided by personnel from this Division. Tests are presently scheduled in the JPL and Langley wind tunnels.

RUSH

Mac

Let's put this text, unadulterated, in my briefing notes for the Council meeting, 30 Jan, in Washington

NOTES - 1-22-62 - GORMAN

B 1-22

1. S-II FACILITIES - Some difficulty has arisen with respect to use of research and development funds for the purpose of design and construction of S-II facilities --- we failed to initiate action to keep the Congress advised of NASA's intention to use R & D funds for construction of such facilities. The Western Operations Office has requested a stop-order on work under way until the Congress has been appropriately advised. You may recall that North American had been given a letter contract for about $500,000 and in turn had let two sub-contracts to architect-engineers. I hope to get this "squared away" this week.

2. COMMUNITY SUPPORT - During your absence, I named Marion Kent as my assistant for Community Support Activities. His counterpart in NASA Headquarters is Mr. Carroll Towne, who is officially joining NASA as of today, January 22. Kent's duties will be to coordinate Marshall's interest in all community support activities in the states of Mississippi, Louisiana, and Florida.

3. UNIVERSITY TRAINING - Tulane University has made a "pitch" for a contract with Marshall to provide educational programs for Chrysler and Boeing personnel and to provide supporting research to the Michoud operations. I do not believe we can work with a single university in the New Orleans area, but rather need to promote an association of universities so as to avoid political problems. I am working with the Washington office on this.

4. RESEARCH INSTITUTE - Meetings are planned for this week to develop a program under which the Alabama Research Institute would actively support the MSFC activities.

H.F. Please tie Dr. Stuhlinger in on this.

B

NOTES 1-22-62 GRAU

B 1-22

Nothing of importance to report this week.

NOTES 1-22-62 Koelle

B 1-22

1. MAN-HOUR SCHEDULE

Recently the question came up how we (FPO, 11 professional people) spend our time. Here is a breakdown:

	Man Years	%
a. Three-stage C-1 and possible follow-on booster	0.8	7.3
b. C-5 launch vehicle, S-IV B and follow-on nuclear third stage	2.3	20.9
c. NOVA conceptualization and preliminary design	1.6	14.6
d. Advanced Vehicle Concepts	0.5	4.5
e. Orbital launch support facilities and operations	2.2	20.0
f. APOLLO Mission Integration	1.3	11.8
g. Advanced lunar transportation systems	0.7	6.4
h. Preliminary planetary mission studies	0.3	2.7
i. Cost and general operations analysis	1.3	11.8
	11.0	100%

H.H.K. No time for poker at all ??

From another viewpoint we are spending our effort along the following lines:

a. Supervision of 30 out-of-house contracts (3×10^6 \$/year) 1/3

b. In-house coordination of, and contributions to, Future Projects 1/3

c. Support of NASA-wide working groups and Headquarters operation 1/3

Very fine.

That's 65%

2. YOUR COMMENTS TO FPO STUDY CONTRACTS (Notes 1-15-62 Koelle)

You suggested a one-hour discussion on our program in the near future. I would be only too happy to discuss our activities and program with you. I am ready any time and expect to get your notification concerning the day and time for an appointment.

O.K. I'll get in touch with you re time.
But —
What I really want to discuss with you is our future cooperation with Dr. Shea's office!

B 1-22

B 1-22

NOTES 1-22-62 HAEUSSERMANN

1. DR. HAEUSSERMANN'S VISIT TO GE/SCHENECTADY: The GE presentation on cryogenic inertial instrumentation, particularly arranged for Dr. Kelley and his people, had to be given in his absence since he became sick. All the presentations were excellent and impressed very favorably the participants of Dr. Kelley's office (Mr. Kanter), JPL, and the Navy ST 24. The Navy, probably profiting first from the cryogenic gyro development for an improved SINS, is willing to add about $50,000 for material research in this fiscal year and will seek for about $400,000 in the next one. We will be able to continue development support at the present rate till July 1962.

2. APOLLO GUIDANCE AND NAVIGATION MEETING AT MIT, JANUARY 16 & 17:

a. Fritz Weber represented Astrionics Division at this meeting. Further meetings will be held monthly for status reporting and communication. MIT is making a variety of studies to define the design requirements for components. Computer: Breadboarded subsystems are under test. The 5th computer, the first flyable model, will be delivered May 1963. IMU (Stabilizer): Preliminary design efforts have started: IMU will be equipped with three pendulous accelerometers (#16 PIPA) and three fluid integrating gyros (#25 IRIG) with an angular momentum of 500,000 gm cm^2/sec. These components will be variations of Polaris developments. The IMU weight will be about sixty pounds. Space Sextant is undergoing a redesign to provide a greater field with a zoom-type lens.

b. MIT studies indicate that the Apollo hardware errors will be about twice as great as launch vehicle hardware errors. MIT plans to build two to seven guidance systems inhouse.

W.H. Please elaborate B 1-22 (in next Notes)

c. According to Mr. R. Chilton, MSC, the MSC projects offices will have technical responsibilities and will be staffed accordingly. This is very different from MSFC operation.

d. It seems that trajectory calculations are being made by MIT/IL, MSFC, MSC, Ames Research Center and NAA. A coordination of these efforts may be advisable. → Shea's Job!

3. ELECTRICAL SYSTEMS FOR COMPLEX 39: Representatives from ASTR Electrical Systems Integration Branch met with LOD personnel to clarify several points about the C-5 launch complex to establish systems design. LOD expects the Astrionics Division to furnish electrical systems design and GSE hardware for complex 39.

4. ELECTRICAL SYSTEMS FOR C-5 SII STAGE: To make the contractor aware of MSFC requirements, representatives of ASTR-Electrical Systems Integration Branch met with NAA representatives and presented electrical systems concepts for the C-5 SII Stage.

Dr. Haeussermann: In the future, Notes exceeding one page will be returned for condensation. We intend to be very [illegible] B

NOTES 1-22-62 HAEUSSERMANN (CONTINUED)

5. DELAYS CAUSED BY PROCUREMENT: The first trial run on PERT indicated that SA-5 telemetry is thirty-five weeks behind schedule. A preliminary study shows that most of the delays occur within MSFC procurement channels. Approximately 70% of the delays occurs in areas beyond the Astrionics Division. In a meeting January 19 with the seven MSFC offices involved in procurement, some problems were discussed and recommendations made to cut time. More actions are required to come to a workable procedure.

Wilbur Davis

Suggest you look into this
Could be very serious!
B

NOTES 1-22-62 Heimburg

B 1-22

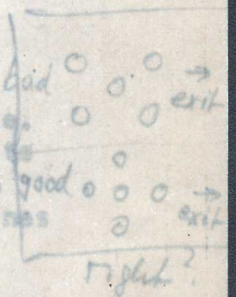
1. SAT-3 STATIC FIRING:

a. The 22nd static firing of SAT was successfully conducted, 1-18-62. The scheduled, and actual, duration was 121.9 seconds with, as planned, LOX depletion cutoff. One engine was intentionally cut off approximately 16 seconds prior to end of test to investigate "engine out" conditions. ✓

b. In some parts of the Northern Area of Huntsville (intersection of Governor's Drive and Jordan Lane), 108 db noise level was measured, which exceeds our arbitrarily set redline value of 105 db. The atmospheric conditions changed more than anticipated when the weather forecast was made, several hours prior to the test. When the transducers required for proper operation of our noise generator (horn) are received, we will be able to monitor the weather conditions far better than presently possible with the weather balloon technique. The output of the "horn" will then be 20 db less than actual test noise. ✓

2. MODEL TESTS:

a. West Area Deflector: Model studies of the original deflector, modified with an extended aspirator or a horizontal exit, did not give satisfactory exit gas conditions with the C-5 configuration in 1/59 scale. A new deflector design with extended 30° slope did not improve the results with a two-engines-in-line (square with walls) impingement pattern. The cluster was rotated 45° to provide a diamond impingement pattern (3 engines in line), and the exit gas conditions were improved considerably. ✓



b. Static Test Tower East Deflector: One preliminary 1/20 scale model test indicated that the present STTE deflector would be adequate for a single F-1 engine. This result will be confirmed with additional testing. ✓

c. LOX Pressurization System Testing: Initial LOX pressurization system tests to determine the pressurant loss due to slosh effects in the C-1 vehicle have been completed. Tests of 100% helium pressurization, and "flash boiling" pressurization were conducted to provide basic data for determining the LOX pressurization system for C-5. ✓

→ Please elaborate in next Notes

B 1-22

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B 1-22

NOTES 1-22-62 HOELZER

H.H.
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please
B 1-22

1. MASTER FILE FOR SATURN FLIGHT TEST DATA: This file has been initiated with the results for SA-1. All data will be filed in a format which the computer can refer to for comparison for similar events between vehicles and for statistical analysis at the end of the Saturn R&D program.

2. PACKARD-BELL 250 COMPUTER: A PB-250 computer has been delivered and connected to the TRICE computer to provide more flexible input-output for the TRICE. The PB-250 can also be used for function generation and automatic scaling in TRICE problems. A composite problem is now being checked out. It is expected that this combination of computers will be an extremely powerful tool for orbital and lunar trajectory studies.

Suggest you brief Dr. Shea on this. B

3. MSFC-ADPS WORKING GROUP: This group was organized with Mr. R. W. Wesson, ADPS Branch, as Executive Secretary. First meeting was held on Thursday, January 18.

4. REPLACEMENT OF BURROUGHS 205 COMPUTERS: The General Electric Co. was awarded a contract for replacement of three Burroughs 205 computers with GE-225 computers. The new computers are scheduled for delivery in April, May and June of 1962 at the Computation Division facilities in the P&VE, Aeroballistics, and Astrionics Divisions. The P&VE machine will initially be installed at the Huntsville Industrial Center.

5. NUMERICALLY CONTROLLED MACHINE: We feel that the numerically controlled milling operations such as we are presently doing in our Manufacturing Engineering Division would be advantageous to have at the Michoud facility and we think the advantages of standardization and compatibility of this type operation between here and Michoud are definitely desirable. We are presently coordinating efforts along this line with Constan and company.

6. ARMY SUPPORT: A meeting was held on Jan. 17 with Mr. Joe Bennett and Army personnel and the final details on how we are to use the Army's 7090 computer were satisfactorily worked out. We expect to start using this machine next month.

NOTES 1-22-62 KUERS B1-22

1. SA-5 Mock-Up: The SA-5 Tail Mock-Up has been completed in its basic configuration. It has already proven to be a useful tool in that it was used for engine gimbal test. This test was conducted jointly with the P&VE Division to determine possible interference problems. Additional components such as the firewall, heat shield, flame shield, a portion of the lower shroud, and additional engines will be added as design advances and/or components become available.

2. SA-5: All structural long lead time items have been received from Republic Aviation Corporation. They number approximately 150 and include both forgings and numerically machined parts.

3. C-5: A group of Welding and Tooling Engineers of this Division, together with Design and Material Engineers from P&VE Division, visited Boeing at Seattle to discuss selection of material for C-5 containers and basic welding and tooling problems. An excellent reception was given the group and information regarding both experience and experimental work was freely exchanged. The end purpose of this trip and the scheduled visit of Boeing Engineers to this installation is to arrive jointly at a decision regarding choice of materials and welding and forming techniques to be used for C-5 containers.