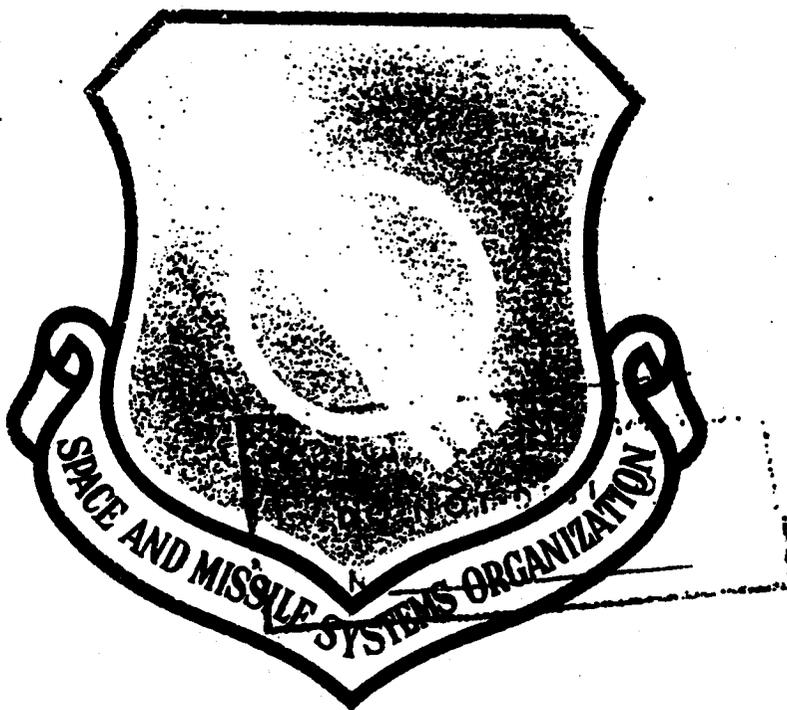


[REDACTED]

DOCUMENT HISTORY OF AG



HISTORY OFFICE
CHIEF OF STAFF
SPACE AND MISSILE SYSTEMS ORGANIZATION
AIR FORCE SYSTEMS COMMAND

10941600

~~CONFIDENTIAL~~

[REDACTED]

DOWNGRADED AT 12 YEAR
INTERVALS. NOT A
DECLASSIFIED. C.F.

DOCUMENT HISTORY OF AGENA

Prepared under the provisions of Air Force Regulation 210-3 and Air Force Systems Command Supplement No. 1 thereto as part of the United States Air Force Historical Program.

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Sections 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

THIS DOCUMENT MAY NOT BE RELEASED TO ANY INDIVIDUAL OR AGENCY OUTSIDE OF THE DEPARTMENT OF THE AIR FORCE WITHOUT THE PRIOR APPROVAL OF THE ORIGINATING ORGANIZATION OR A HIGHER AUTHORITY IN THE DIRECT LINE OF COMMAND.

16 N. W. 6. 5. 17

NO. IN J. 007. 00000

246 TITLE NUMBER (1500)

K243.012-22

V.5

245 ORAL HISTORY NUMBER

00919609

249 OLD ACCESSION NUMBER (1500)

247 ORAL HISTORY REEL FRAME NUMBER

20-26-21-20020

SECURITY WARNING/ADMIN MARKINGS

40 PR CN 3A WI NF PV PO PS

ORAL HISTORY CAVEAT

01 02 03 04

40 CONTRACT

PROPRIETARY INFO

THIS DOCUMENT CONTAINS RATS _____ INFO

301 DOCUMENT SECURITY

301

C

301 DOCUMENT SECURITY

DECLASSIFY ON

REVIEW ON

CLASSIFICATION AND DOWNGRADING INSTRUCTIONS FOR

302

TITLE ABSTRACT LISTINGS

028

REF. 00919605 BEST DUP OF _____

027 NUMBER IN AUDIO REEL SERIES

INSERT TO _____ DUP OF _____

CATALOGING RECORD

MAIN ENTRY (Use one) (1500)

100 PERSONAL NAME

109 ISSUING AGENCY

129 TITLE AS MAIN ENTRY

Span and Thissili Systems Organization

TITLE (Use one) (DO NOT USE IF TITLE IS MAIN ENTRY) (1500)

228

Agera Flight History

OR CHECK:

- 2210 ORAL HISTORY
- 222E END OF TOUR REPORT
- 223H HISTORY (AND SUPPORTING DOCUMENTS)
- 224C CHECO MICROFILM
- 226Q CORRESPONDENCE
- 228Z PAPERS
- 227P CALENDAR

230 TITLE EXTENSION: ENTER VOLUME NUMBER, PARTS, ETC. (2500)

Vol 5 of 8

DATES: ONLY 254 OR 255 MUST BE COMPLETED. SUPPLY BOTH IF KNOWN

254 INCLUSIVE DATE 45, 01, 01 TO 67, 12, 31

IF DATE ESTIMATED, CHECK HERE

255 DATE OF PUBLICATION _____

260 TOTAL PAGES _____



CONFIDENTIAL

GROUP 1
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND
DECLASSIFICATION

K 243.012-32
1745-1061
RETURN TO
9 JUN 1989
1-0-107
Area No Study 1-1
Area No Archives Branch

Prepared by
S. A. Grossly

November 1971

HISTORY OFFICE
CHIEF OF STAFF
SPACE AND MISSILE SYSTEMS ORGANIZATION

CONFIDENTIAL
30 JUN 1989
DOWNGRADED AT 12 YEAR
INTERVALS NOT AUTOMATICALLY
DECLASSIFIED. DOD DIR FORM 117

3-6466-10

ENGINE AND RELATED SYSTEMS CREW/OPERATOR (ECR)

ENGINE HISTORY OF AFM.

1. Ltr (C/Op3), from Comdr, WED to Ocrs, Cite WED 3-3-E, 16 Mar 57.
2. Ltr (S/ED), from WED (WED) to MajGen D. J. Keira, no subj, 8 Apr 57.
3. Ltr from WED (WED) to Lockheed Aircraft Corp, subj: AFMD Policy Review of LAC/MSD Report 35804 "General Test Plan and Related Facilities and Equipment," 23 Sep 57.
4. Mf (C/Gp3), from MCPA to MEPT, subj: Weekly Diary - 4 thru 10 Oct 57, 10 Oct 57.
5. Memo for the File from MCPA, subj: Letter Contract AF 04(647)-57 - Lockheed Aircraft Corporation - Amendment #6, 11 Oct 57.
6. Memorandum for Col Terhune (C/Gp3), from WDIR, sgd Col Frederic C. E. Oler, subj: WS-117L Guidance and Control, 14 Feb 57.
7. Memorandum for Col Oler from WDIR, signed Col Harry L. Evans, subj: Guidance and Control for WS-117L, 29 Mar 57.
8. Mfg (C/Gp3), from Lockheed MSD, Palo Alto, to Comdr AFMD, subj: I/C Contract AF 04(647)-181, Proposed Development for Short-Term Improvement of New Horizon Propulsion Subsystem, Cite LMSD 56167, 2 Apr 58.
9. Mfg, from Comdr ARDC to Comdr AFMD, Cite RDZOW 7-4-E, 0310457.
10. ARPA Order No. 17-59, 4 Sep 58.
11. ARPA Order No. 17-59, Amendment No. 1, 29 Sep 58.
12. ARPA Order No. 17-59, Amendment No. 2, 17 Oct 58.
13. ARPA Order No. 17-59, Amendment No. 3, 26 Nov 58.
14. Navy Mfg to Comdr, WADC, subj: Engine Designation; confirmation of, 11 Dec 58.
15. WADC Ltr, to Hq ARDC, subj: Model Designation for WS-117L Engine, 9 Jan 59.
16. DE from WDW/S to LBJ, subj: Request for CCH for Contract AF 04(647)-97, 15 Jan 59.
17. Deleted.
18. Ltr from BMC (LBJ), subj: Back-up Photovoltaic AFU Design, 20 Jan 59.
19. Mfg from MSD, Sunnyvale to BMC, 21 Jan 59.

- 20. **Item** Lockheed Aircraft Corp to Comdr, 4th AGC, subj: Contract No. AF(64)57, Back-up Photovoltaic APU Design, 2 Feb 59.
- 21. **Item** Comdr, AFWD to Director, AEA, 9 Feb 59.
- 22. **Memorandum** for Col Curtin from WDEZ, subj: Photovoltaic Solar Cell Research, 16 Feb 59.
- 23. **Memorandum** for WCol Battle from WDEZ, subj: Dual Burn Engine Capability, 6 Mar 59.
- 24. **Let (S/M)**, AFWD (WDEZ) to Maj Gen D. J. Keirn, no subj: 9 Mar 59.
- 25. **ARPA Order No. 17-59**, Amendment No. 4, 10 Apr 59.
- 26. **ARPA Order No. 17-59**, Amendment No. 5, 13 Apr 59.
- 27. **Let**, Lockheed Aircraft Corp to Comdr AFWD, subj: Analytic and Stability Studies of WS 1171 Flight Control Section.
- 28. **Let** from Lockheed Aircraft Corp to Comdr, AFWD, subj: Contract AF 04(647)-97 Solar APU Backup Program, 2 May 59.
- 29. **Reg (C/GP3)**, from Lockheed to IAFJ F. S. Silberman, subj: Amendments to CCM No. 23, 6 May 59.
- 30. **ARPA Order No. 17-59**, Amendment No. 6, 18 May 59.
- 31. **WDZ Memorandum** for multiple addresses, subj: ARPA Order 17-59 (as amended), 18 May 59.
- 32. **Let** from AFWD (WDRM) to IBER, subj: Letter Contract Supplemental Agreement 32 to Contract AF 04(645)-65, Closed Loop Propellant Utilization System, 1 Jun 59.
- 33. **AFWD report**, subj: Transit II Program Progress Report for May 1959, 8 Jun 59.
- 34. **Para** from Weekly Diary 11: thru 18 June 59 from BMC (LEA), 18 Jun 59.
- 35. **ARPA Order No. 17-60**, Amendment No. 8, Project Code No: as indicated below, 18 Jun 59.
- 36. **ARPA Order No. 96-60**, Project Code 10, 3600, 1 Jul 59.
- 37. **AFWD Report**, subj: TRANSIT II Program Progress Report for 30 Jun 59.

58. Report, subj: Evaluation of AGNA Vehicle, 31 Dec 59, 3 Nov 59.
59. Ltr from WZNI to WZT, subj: Discoverer/Agna/Agna/Agna/Agna Configurations, 13 Dec 59.
60. Ltr from WZNI to WZT, subj: Discoverer/Agna/Agna/Agna/Agna Configurations, 17 Nov 59.
61. AFSA Order No. 95-63, Amendment No. 2, Project Code No. 300, 3 Dec 59.
62. Ltr from AFPTC to AFEMD, subj: Engine Model Designations, 18 Dec 59.
63. AFEMD report, subj: Modification of AGEHA Vehicle, 30 Nov 59, 22 Dec 59.
64. Ltr from AFEMD Field Office, WDCV-6, to Comdr AFEMD, subj: Procedure for Coordination of Discoverer Engineering Approvals, 5 Jan 60, w/1 Atch Report, Subj: Procedure for Coordinating Approvals on Engineering Modifications to Agna Vehicles at Lockheeds Facility at Vandenberg AFB.
65. Ltr from WZNE to WZNY, subj: Control of Agna Vehicle Changes following AF Acceptance, 19 Jan 60.
66. AFEMD report, (C/Op3), subj: AGEHA Program Progress Report as of 31 Jan 60, 12 Feb 60.
67. Ltr (C/Gp4) from AFEMD to ARDC (RDR), subj: Augmentation of Propulsion Program, 23 Feb 60.
68. Msg, Cite AFDDP 73993, 27 Dec 60.
69. Ltr from Lockheed to AFEMD (WZNR), subj: Standardization Provisions in the Agna Configurations - Interim Report, 4 Mar 60.
70. Msg (S/Gp3) from Lockheed to AFEMD, Cite LMSD 354768, 8 Mar 60.
71. AFEMD report (C/Gp4), subj: AGEHA Program Progress Report as of 29 Feb 60, 8 Mar 60.
72. AFEMD Ltr (Uncl w/o Conf/Gp3 Indorsement) to WZNI, subj: Reliability Testing of Agna Subsystems by Air Force Agencies, 9 Mar 60, v/1st Ind, same subj, 5 Apr 60.
73. Ltr (Uncl w/o C/Gp4 Atch), sgd D. H. Murphy, Contracting Officer, to Comdr ARDC, subj: NASA Order No. S-4601-C, 23 Mar 60, v/1 Atch, Statement of Task, w/1 (C) Atch, NASA Agna Launch Schedule.
74. AFEMD (WZNR-1) Ltr to multiple address, subj: Agna Vehicle Captive Test Program, 11 Apr 60.
75. AFEMD Daily Bulletin No. 71, 12 Apr 60.
76. NASA Agna-B Program, MSFC and AFEMD Management Relationships, 14 Apr 60.

75. AFMS report (C/GP4), Atlas Program Progress Report as of 30 April 1960, 6 May 60.
76. AFMS ltr (C/GP4), subj: Assignment of Thor Vehicles to the USA Agena B Program, 12 May 60.
77. AFMS ltr (C/GP4) to Hq AFDC, subj: General Schriever's Appearance before Johnson Committee, 9 June 1960, 2 Jun 60.
78. WZY-2 ltr to Lockheed Missiles & Space Division, subj: Improvement of Agena Flight Preparation Procedures, 13 Jun 60.
79. WZ ltr to AFDC (RDG), subj: Management Relations with the NASA Concerning the NASA Agena B Program, 16 Jul 60.
80. WZ ltr to AFDC (RDGH), subj: NASA Agena B Program, 16 Jul 60.
81. AFEMD (WDG-16) ltr to WDZD (Col Evans), subj: Agena Checkout Philosophy, 9 Sep 60.
82. WDR ltr to WDG-16, subj: Agena Checkout Philosophy, 19 Sep 60.
83. AFEMD (WDRSS) Ltr (S/GP3) to AFDC (RDRB), subj: Request for Study--Atlas-Agena's Launch from AMR, 19 Sep 60.
84. AFEMD (WZY-1) ltr to WZXD (Col Battle), subj: Test Criteria, 22 Sep 60, w/1 Atch, Ltr, DMSD/368772, w/atc.
85. WDC ltr to WZ, subj: NASA Agena B Schedule, 8 Nov 60.
86. BSC (LBZJR) ltr to Lockheed Aircraft Corp, subj: Implementation of New Test Philosophy, DISCOVERER Program, Contract AF 04(647)-558, 18 Nov 60.
87. Historical report of the NASA Agena B Program for 1 Jul to 31 Dec 60.
88. Ltr (S/GP3) sgd Col Paul J. Heran to LEX (Mr. Gibson), subj: Agena Configuration, 3 Jan 61.
89. BSC (LBZJR) ltr to Lockheed Corp, subj: Implementation of New Test Philosophy Discoverer Program Contract 04(647)-558, 5 Jan 61.
90. Historical Report, (C/GP4), NASA Agena "B" Program, 17 Jan 61.
91. Msg (C/GP4) from Hq USAF, cite AFDSO-MS 78828, 191818Z Jan 61.
92. Msg from BSC to IMED, subj: Contract AF 04(647)-558, Implementation of New Test Philosophy, Discoverer Program, 3 Feb 61.
93. Ltr from BSC (LBZJR) to Lockheed, subj: Make or Buy Structure Satellite Systems Contracts, 13 Feb 61.

94. AFM (LEZYB) Ltr to multiple address, subj: Procurement Requirements, 14 Feb 61.
95. National Aeronautics and Space Administration Agena B Launch Vehicle Program Management Organization and Procedures, 14 Feb 61.
96. AFM (WDZ) Ltr to WDRV and WDG, subj: Responsibilities of the Aerospace Corporation, 23 Feb 61.
97. AFM (WDZYA) Ltr (Uncl w/o C/Gp4 Atch) to Mr. Robert H. Shatz, subj: Technical Data on the Agena Vehicle, 24 Feb 61, w/1 Atch: Technical Data.
98. SSD (SSZA) Ltr to Lockheed, subj: New Test Philosophy Implementation, By-pass of Vandenberg MAB Building, 16 Jun 61.
99. SSD (SSZA) Ltr to All SSZA Subsystem Personnel, subj: Discoverer EJA Approval Procedures, 24 Jul 61.
100. Msg (C/Gp4) from SAFS to SSD, info AFSC and DCAS, Cite SAFS 92454, 092008Z Aug 61.
101. SSD (SSZIE) Ltr to SSE (Dr. Rockefeller), subj: Historical Summary, ARDC/AFSC Support of Army/Navy Space NASA Programs, 9 Aug 61.
102. SSD (SSVR) Ltr (Uncl w/o C/Gp4 Atch), to SSE (Dr. Rockefeller), subj: Historical Summary, ARDC/AFSC Support of Army Navy Space NASA Programs, 9 Aug 61, w/1 atch.
103. Aerospace Corp Ltr to Col. H. L. Evans, subj: Standardizing the Agena, 14 Sep 61.
104. SSD (SSZ) Ltr to Chiefs of Offices through Branch Level, subj: Development and Utilization of the Agena D, 18 Sep 61.
105. SSD (SSZ) Ltr to Aerospace Corp (Mr. Brewer), subj: Standardized Agena, 18 Sep 61.
106. Asst Secretary of Defense Memorandum for the Asst Secy of AF (R&D), subj: Standardized Agena (C/Gp4), 4 Oct 61.
107. Msg (S/Gp3) from SAFS to SSD, info AFSC and DCAS, Cite SAFS 68264, 062221Z Oct 61.
108. SSD (SSZDK) Ltr to SSKK, subj: Authorization for Type of Contract, 9 Oct 61.
109. Asst Secy of Defense Memorandum for the Asst Secy of AF (R&D) (C/Gp4), subj: Titan III Launch Vehicle Family, 13 Oct 61.

110. AFSC (SOGH) Ltr (C/Gp4) to Comdr ESD, subj: Standardized Agena and Atlas III, ca 17 Oct 61.
111. Mag, Cite RWRMP-17-10-19-E, 17 Oct 61.
112. Memo, Sgt Brockway McMillan (FOUO), for Asst Secy of Def, ODD&E, subj: Standardized Agena Program, 24 Oct 61.
113. Study of the Agena "D" by the Johnson Committee (C/Gp4), 25 Oct 61.
114. Active SSZ Contracts, 17 Oct 61.
115. AFSSV ltr (C/Gp4) to AFSC, subj: Standardized Agena Space Vehicle (Agena D), 26 Oct 61.
116. Agena Office Mission and Organization, Nov 61.
117. DAF Memo for Chief of Staff, subj: Standardized Agena, 3 Nov 61, w/1 Atch: Memorandum for Director, DR&E, 31 Oct 61.
118. SSD (SSZA) Ltr to Col Evans, subj: Items to be Considered when Accelerating the Agena B Schedule, 6 Nov 61.
119. SSD (SSZ) Ltr (S/Gp3), subj: Agena "D," 6 Nov 61.
120. Lockheed ltr to F. W. O'Green, subj: Summary of Instructions Issued by Dr. Charyk in Agena D Meeting of November 7, 1961, 9 Nov 61.
121. Ltr, subj: Organizational Changes and Personnel Reassignments, 13 Nov 61.
122. Ltr to Deputies and Chiefs of Major Staff Offices, subj: Project 662A, 20 Nov 61.
123. Ltr to Deputies and Chiefs of Major Staff Offices, subj: Establishment of Project Office 662A, 20 Nov 61.
124. MFR (Uncl w/c C/Gp4 Atch), subj: Agena D, 20 Nov 61.
125. Mag from Hq USAF to AFSC, info SSD, Cite AFSEM 90799, 222309Z Nov 61.
126. SSD Ltr (C/Gp4) to Lockheed, subj: Agena D Structural Criteria, 24 Nov 61.
127. AFSC (SOGH) Ltr (C/Gp4) to SSD, subj: Instructions on Standard Agena D Program, 24 Nov 61.
128. MFR (C/Gp4), subj: Agena "D" Conference, 27 Nov 61, w/1 Atch: Summary of Instructions Issued by Dr. Charyk in Agena D Meeting on November 7, 1961.
129. Memo of Understanding from RWRM (Lockheed AFPRO) to Col Henry B. Kucheman, 28 Nov 61.

132. Mag (C/Op4) from Lt USAF to AFSC, info SED, cite AFSC 8250, 20902, Nov 61.
133. Mag (C/Op4) from SSM to Lockheed, sent 30 Nov 61.
134. Mag (S/G-3) from OSAF to AFSC, info DCAS, cite SAFA 83174, 04206, Dec 61.
135. Omitted.
136. SSJ Ltr to Deputies and Chiefs of Major Staff Offices, subj: Deputy for Agent.
137. SED (SSZDB) Ltr (C/Op4) to SSID, subj: Agent D/PA-21 Interface, 18 Dec 61.
138. SED (SSID) Ltr to AFSC (Gen Schriever), subj: Instructions on Bomber Agent Program, 18 Dec 61, v/1 Atch: Program 662A Management and Operational Plan, v/6 Atch.
139. Ltr SSX-1 Ltr to SSZ (Lt Col Strathy), subj: Agent D Programming Data, 19 Dec 61.
140. Mag from LMSC, Cite LMSC AOT1763/62-41/100, 2800307, Dec 61.
141. SSID Ltr to SSZ, subj: Procurement of Optional Equipment, 28 Dec 61.
142. Mag (C/Op4), Cite AFSSV-BQ 90915, 0523242, Jan 62.
143. MFR from SSX, subj: Briefing to Dr. Charyk, 5 Jan 62, (C/Op4).
144. Ltr (C/Op4) from SED (SSID) to Distribution, subj: Fund Requirements for Program 662A, 11 Jan 62.
145. SED (SSZDF) Ltr to SSX (Mrs. Arnold), subj: Sole Source Justification for Complexes 75-3 and 75-1, 18 Jan 62.
146. SED (SEIDA) Ltr (C/Op4) to SSZ (Major Lochry), subj: Agent D Performance Data, 18 Jan 62.
147. SSX MFR, 23 Jan 62.
148. SSX MFR, subj: 18 January and 19 January Agent D Briefing, 23 Jan 62.
149. SED (SSVX) Ltr to SSZ (Mr. Moore), subj: Additional Instrumentation on Discoverer Flights, 2 Feb 62.
150. SSID MFR, subj: Discussions with Mr. O'Green and Staff, 19 Feb 62, 18 Feb 62.
151. SSX MFR to SSZ, SSZ and SSV, subj: Agent D Advanced Component Interface, 20 Feb 62.

149. Ltr. subj: Staff Visit of MajGen Ritland and Mr. Kelly Johnson, 25 Feb 62.
150. Ltr. from MajGen O. J. Ritland and Clarence L. Johnson to Gen. E. A. Tamm, 27 Feb 62.
151. Ltr. from AFAC, Cite: SCOR-28-2-46, 28 Feb 62.
152. Ltr. (C/Op) from BSD to SSZ and SSZA, subj: Agena D Weight, 2 Mar 62.
153. Ltr. (C/Op) from BSD to SSZ, subj: Agena D Delivery Schedules, 2 Mar 62.
154. Ltr. from BSD, subj: Policy Memorandum - Agena D Optional Equipment Procurement Procedures, 5 Mar 62.
155. Ltr. Cite: SCOR-1-3-12, 071630Z Mar 62.
156. Lockheed Ltr. to AFSD (SSZ), subj: Comparison of Costs - Agena B vs. Agena D, 8 Mar 62.
157. BSD (SSVK) Ltr. to BSVR (Maj J. Albert), subj: Study of Three Agena B Configurations, 12 Mar 62.
158. BSD (SSVK) Ltr. to BSVK, subj: DA-21 Agena D Pad and AG Modification, 13 Mar 62.
159. BSD (SSD) Ltr. to BSK, subj: Contract AF O4 (693)-68, Request for Authority to Use Form C Price Re-determination, 22 Mar 62; (C/Op) F.
160. BSD (SSD) Ltr. to Lockheed, subj: Contract AF O4-695-21, Incentive Fee Negotiations, 22 Mar 62.
161. WGR (RWR) Ltr. to MajGen O. J. Ritland, subj: Progress Made in Improvements to LMSC Accounting System, 23 Mar 62.
162. Report (S/Op) subj: Space Systems Division USAF Abridged Package 6488 - Agena D, 2 Apr 62.
163. Report (S/Op) subj: SSD USAF Reimbursable Fund Requirement for 6488 - Agena D, 2 Apr 62.
164. BSD (SSR) Ltr. to BSEP, subj: Requirement for Component Improvement Provision Advisory Committee, 2 Apr 62.
165. Negotiated Contract AF O4 (695)-21, 6 Apr 62.
166. BSD (SS) Ltr. to DCG (LtGen Bates), subj: Atlas Launches at AFK and RMI, 9 Apr 62; 15/14 Feb (C) Ltr. from Gen Bates to Gen Ritland, 10 Mar 62, same subject.

171. ASD (ASD) Ltr to ASD, subj: Agenda D Configuration, 18 Apr 62.
172. ASD (ASD) Ltr to ASD, subj: Lockheed Air Force Meeting on Agenda D Operational, 27 Apr 62.
173. ASD (ASD) Ltr to Gen O. J. Ritland to Gen B. A. Schriever, no subj, 25 Apr 62, v/l Atch: AFSC, 27 Apr 62, to Comd AFSC, Rept of 2d Review of Agenda D.
174. ASD (ASD) Ltr to ASD, subj: Attendance at Mockup, CTCI and DEI Boards, 27 Apr 62.
175. ASD (ASD) Ltr to ASD (Col Berg), subj: ASD (Agenda D) Objectives for FY 63, 30 Apr 62.
176. ASD (ASD) Ltr to ASD, subj: Contract AF 04(695)-68 - Review of 'Make or Buy' Program Pursuant to DCAS AFPI Supplement 2, 9 May 62.
177. ASD (ASD) Ltr to ASD, subj: FY-62 Incremental Funding of the Agenda D Contracts, 10 May 62.
178. ASD (ASD) Ltr to Lockheed, subj: Agenda D Optional Equipment, 14 May 62.
179. ASD (ASD) Ltr to ASD (LtCol Warren), subj: Underfunded Contracts, 14 May 62.
180. ASD (ASD) Ltr to ASD, subj: Modernization of Industrial Facilities Bell Aerosystems Contract, 16 May 62, v/l Atch: ASD memo subj dtd 15 May 62, v/l Atch, Cy 180 to LHM from Bell, no date.
181. ASD (ASD) Ltr to ASD (LtCol Blum), subj: Technical Support Contract, 21 May 62.
182. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
183. ASD (ASD) Ltr to ASD (LtCol Blum), subj: Technical Support Contract, 21 May 62.
184. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
185. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
186. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
187. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
188. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
189. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
190. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
191. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
192. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
193. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
194. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
195. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
196. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
197. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
198. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
199. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.
200. ASD (ASD) Ltr to ASD, subj: Technical Support Contract, 21 May 62.

Program Improvement Briefing to Major Attendants and
23 Jul 62

- 187. Ltr (C/Op) from USAF, subj: Agena D, Presentation, 25 Jun 62; 27 Jun 62
- 188. Ltr, subj: Agena D Funding, 28 Jun 62
- 189. Ltr, CTR 2-6-61, 28 Jun 62
- 190. SSO (SSO) Ltr (C/Op) to multiple address, subj: Agena D Optional
Engine and Vehicle Status, 3 Jul 62
- 191. SSO (SSZO) Ltr to SSHAQ, subj: Conversion of AMR Complex 1 to an
AMR/Gen Configuration, 5 Jul 62
- 192. SSO (SSS) Ltr to multiple address, subj: Agena D Configuration
Control, 9 Jul 62
- 193. SSO (SSS) Ltr to multiple address, subj: Configuration Control of
Agena D, 11 Jul 62
- 194. COE Status Contract AF 04(695)-21 As Of 12 July 1962
- 195. SSO (SSZD) Ltr to BSC and SSVX, subj: Program Designation Change
12 Jul 62
- 196. SSO (SSS) Ltr (C/Op) to SSO-1 (Col Wickland), subj: International
Programs, 12 Jul 62
- 197. SSO (SSS) Ltr to AFSC (SOH Col Nudenberg), subj: 64th Monthly Program
Progress and Status Report Period Ending 30 June 1962, 13 Jul 62
- 198. SSO (SSS) Ltr to SSKR (Mr. Montgomery), subj: Preliminary Impact
Evaluation of Pending Aerospace Industry Strike on SSO Programs
(Report Control Symbol: RCS) AF-XDL-82, v/l Atch: Report
- 199. SSO (SSHA-2) Ltr to 6793 Test Group, subj: LR01 Rocket Engine, 20 Jul 62
- 200. SSO (SSHA) Ltr to Lockheed, subj: Agena Multiple Start Engine Compat-
ibility with DOD Missions, 25 Jul 62
- 201. SSO (SSSR) Ltr to ASD, subj: Request for Type Designation, Agena D
Vehicle, 28 Jul 62
- 202. Ltr from Douglas Aircraft Co. Inc. to Lockheed, 1 Aug 62
- 203. SSO (SSKQ) to SSS, subj: AF 04(695)-19, Authority for Non-Competi-
tive Restricted Procurement, 1 Aug 62
- 204. Ltr from SSO to ARDC, cite SSS 2-6-1-2 Aug 62

202. SSO (SSHA) Ltr to Lockheed, subj: Agena Rocket Engine Designation, 14 Aug 62.
203. SSO (SSHD) Ltr to AFPRO, Lockheed, subj: Requirement for Vehicle Transfer, 3 Aug 62.
207. SSO (SSR) Ltr to multiple address, subj: Technical Manuals for Agena B, 10 Aug 62.
208. SSO (SSFK) Ltr to SSRR (Maj Barnes), subj: Transfer of Agena D Program Management, 13 Aug 62.
209. Msg from SAPOI-30 Maj Moore for release 15 Aug 62.
210. SSO (SSHD) Ltr to multiple address, subj: Auto-DRAPE Orientation, 16 Aug 62.
211. SSO (SSHA) Ltr to Lockheed, subj: Establishment of Agena-D Prelaunch Conditions, 20 Aug 62.
212. SSO (SSHA) Ltr to Lockheed, subj: Agena Multiple Start Engine Compatibility with DOD and NABA Program, 24 Aug 62.
213. Status Report on Agena D (Program S-01A) August 62.
214. Msg from SSO to Lockheed, Cite SSR 27-8-33, 27 Aug 62.
215. Memorandum of Agreement, subj: Management Relationships Between SSO, SSZ, SSZN, SSZK and IMSC, 5 Sep 62.
216. SSO (SSFK) Ltr to multiple address, subj: Authorization for type of Contract, Contract AF 04(695)-198, 7 Sep 62, v/1 atch.
217. SSO (SSR) Ltr to SSZ, subj: Agena D FY-63 Funding Requirements to Support SSZ Program Requirements, 11 Sep 62.
218. SSO (SSR) Ltr to SSVR, subj: Agena D FY-63 Funding Requirements to Support NABA Program Requirements, 11 Sep 62.
219. Msg from SSO to CSAF, Cite SSR-13-9-10, 13 Sep 62.
220. Msg from SSO to AFAC, Cite SSR-13-9-11, 13 Sep 62.
221. SSO (SSHA) LTR to Capt George W. Watts, 17 Sep 62.
222. SSO (SSR) Ltr to Lockheed, subj: Production of Optional Kits under the -63 Contract, 24 Sep 62.
223. SSO (SSO) Ltr to Secy of the Air Force (SAFRA), subj: FY-62 and FY-63 Agena D Funding Requirements, 27 Sep 62 (8/0p3).

224. (SSH) Ltr to Lockheed, subj: First Article Configuration Inspection of S-01A/13, 17-19 Sep 62, 28 Sep 62.
225. Neg. Cite SSH 22-9-33, 28 Sep 62.
226. Lockheed Ltr to AFSSD (DCCA), subj: Management of the S-01A Program, 1 Oct 62, w/1 Atch: Program Management Paper.
227. 1st Ind. (Uncl. v/c C/Gp4 Atch), SSD to SSVSP, subj: Liquid Rocket Engine Data, 5 Oct 62, w/1 Atch: Engine Data Chart.
228. (SSH) Ltr to Lockheed, subj: Ground Rules for Management of the AC-1 System, 8 Oct 62.
229. Neg. Cite SSH 12-10-23, 12 Oct 62.
230. SSD (SSH) Ltr to SSU, subj: Agena Presentation, 15 Oct 62.
231. Neg. (C/Gp4), Cite SSH 15-10-26, 15 Oct 62.
232. 1st Ind. SSD (SSH) to SSVZR, subj: Agena D/Gemini Configuration, 16 Oct 62.
233. Memorandum to SSH (Col Fletcher), subj: S-01A Requirements Based on TAR Boosted Missions, 18 Oct 62.
234. SSD (SSH) Ltr to AFPRO (Col Voyles), Lockheed, subj: AFPR Logistics Surveillance of Program S-01A, 19 Oct 62.
235. SSD (SSH) Ltr to SSVZR (Maj Albert), subj: Optional Equipment Requirements for S-01A Vehicles, 22 Oct 62.
236. SSD (SSH) Ltr to SSHK, subj: Sole Source Justification, Contract AF O4 (695)-221, 22 Oct 62.
237. Neg. Cite SSH 23-10-37, 23 Oct 62.
238. SSD (SSH) Ltr to SEO (Col Hedrick), subj: Agena D C&C Optional Equipment, 31 Oct 62.
239. SSD (SSH) Ltr to SSVR, subj: Agena D FR-63 Funding Requirements to Support MARS, 11 Nov 62.
240. SSD (SSH) Ltr to Lockheed, subj: S-01A Vehicle Assignment Philosophy, 2 Nov 62.
241. SSD (SSH) Ltr to Lockheed, subj: First Ullage Rocket Carrier Problem, 8 Nov 62.
242. SSD (SSH) Ltr to multiple address, subj: Request for Authority to Extend Derivation Date and to Obligate Additional Funds - Letter Contract AF O4 (695)-687 Agena D, 14 Nov 62.

211. (S) Ltr to BSVZ, subj: Proposed NASA/Air Force Management
21 Oct 62.
212. (S) Ltr to multiple address, subj: Request Authorization for
AF 04(695)-233, 16 Nov 62.
213. (S) Ltr to 6595 AFV (Col Perry), subj: Umbilical Test Philosophy
for Removal for SLV3/S-01A/Payload FSV, 26 Nov 62.
214. (O/G4), Cite AFSSV No. 08986, 302127Z Nov 62.
215. (S) Ltr to Lockheed, subj: First Article Configuration Inspection
of S-01A/19, (G-23 Nov 1962), 12 Dec 62.
216. Historical Data - Jul-Dec 1962 from SSZAR to SSZA, 24 Jan 63.
217. (S) Ltr to Gen B. A. Schriever, 25 Jan 63.
218. Contractor Performance Evaluation Report on AF Contract AF 04(695)-21,
with Lockheed Missiles and Space Company, Sunnyvale, California,
14 Feb 63, (O/G4).
219. Ltr and Gen B. A. Schriever to Dr. Robert C. Seamans, Jr., 6 Mar 63.
220. Space Systems Division USAF S-01A Management Package, 20 Mar 63 (S/Gp3).
221. Mag, Cite MEPA 16-4-35, 161700Z Apr 63.
222. (S) Ltr to Distribution, subj: Letter of Understanding Between
NASA Lewis Research Center and USAF Space Systems Division for Transfer
of NASA Agena Contracts, 9 May 63.
223. (S) Ltr to BSEN and SF-206, subj: Configuration Control
Management of Program S-01A Booster Vehicles, 19 Jun 63 (S/Gp4).
224. Mag Cite AFSSD 76993, undated, and Mag Cite MEPA 15-7-22, 152045Z
Jul 63.
225. AFSSD (NSWAR) Ltr to multiple address, subj: Transmittal of Memorandum
of Agreement, 20 Aug 63, v/1 Atch: USAF-NASA Memorandum of Agreement
NASA Office of Space Sciences Agena Launch Vehicle Program, 9 Aug 63.
226. (S) Ltr (O/G4) to BSV, subj: Annual Report of Achievements
(3 Oct 1962 - 3 Oct 1963), 27 Sep 63.
227. DOD Hqs Release No. 1396-63, 21 Oct 63.
228. Mag Cite MEPA 7-11-6, 071956Z Nov 63.
229. Summary Report - Transfer of NASA Agena Programs from AFSSD to NASA
14 Dec 63.

252. OSD (SSVA) Ltr to Hq AFSC (MSPA), subj: Summary of Transferred Agency Programs, 3 Jan 64.
253. OSD (SSVA) Ltr (Uncl v/o C/Gp4 Atch), subj: Historical Report, 1 Jul 1963-31 December 1963, 4 Feb 64, v/2 Atch.
254. OSD (SSVA) Ltr to SSVA (Col Blum), subj: Erection of Thor-Agena in Front of Building A, 16 Apr 64.
255. OSD (SSVA) Ltr (C/Gp4) to SSEE, subj: Historical Report, 1 January 1964-30 June 1964, 12 Aug 64, v/5 Atch: 1 (U); 2 (C); 3 (U); 4 (C); 5 omitted; 6 (C).
256. OSD (SSG) Ltr (Uncl v/o C/Gp4 Atch) to AFDC (DMSE Maj Gen Ritland), subj: Recent Agena Flight Problems, 12 Nov 64, v/1 atch; Proposed Letter to Sec McMillan, from Gen Schriever, v/1 atch.
257. OSD (SSG) Ltr (Uncl v/o C/Gp4 Atch) to AFSC (Gen Schriever), subj: General Dynamics/Astronautics Proposal to Increase SLV-3/Agena Payload Capability, 27 Nov 64, v/2 Atch; Atch: 1 C/Gp4.
258. OSD Memorandum for Generals Funk and Cooper (FOUO), subj: Request for Authority to Raise Major Agena Subcontractors to Associate Status, 10 Dec 64.
259. OSD (SSK) Ltr (C/Gp4) to AFSC and Hq USAF (in turn), subj: Request for Determination and Findings Pursuant to AFPI 3-214, 25 Jan 65.
270. OSD (SSVA) Ltr (C/Gp4) to SSEE, subj: Historical Report, 1 July 1964 - 31 December 1964, 5 Feb 65, v/5 Uncl Atch.
271. Gemini Atlas Agena Target Vehicle System, Management and Responsibilities Agreement between the National Aeronautics and Space Administration, Manned Spacecraft Center and The United States Air Force Air Force Systems Command, Space Systems Division, Mar 65.
272. OSD (SSIA) MFR, subj: Biosatellite Program -- Call from Col Pickering and Sun of AD, 9 Mar 65.
273. Memorandum for Gen Funk, Thru Gen Cooper, from Col Hamilton, subj: Advanced Life Support Capsule, 2 Apr 65.
274. OSD (SSK) Ltr (C/Gp4) to AFSC and Hq USAF (in turn), subj: Request for Determination and Findings Pursuant to AFPI 3-214, 25 May 65.
275. OSD (SSIO) Ltr to AFSC (SCOO), subj: Request for Organization Change - Gemini Agena Division (SSVA), 29 Jul 65.
276. OSD (SSVA) Ltr (C/Gp4) to SSEE, subj: Historical Report, 1 January 1965-30 June 1965, 9 Aug 65, v/5 Atch; Atch 1 (C/Gp4).
277. Ltr (C/Gp4) SSF 1011, 20 Oct 65.

276. SSB (SSV) Ltr to SSAS (S/Gen Martin), subj: Program 206-II / Agena Launch Capability Contract, 3 Nov 65.
277. AFRL Ltr and Gen J. A. Schriever to SSD (Maj Gen Funk) and AFRL (Brighton Quastler), 22 Nov 65.
280. Mag Cite SSO 1012, Nov 65.
281. SSD (SSVA) Ltr (C/Gp4) to SSED, subj: Historical Report, v/6 Atch. 1. (U); 2. omitted; 3. (U); 4. (U); 5. (C); 6. (U); 7. (C); 8 Feb 66.
282. SSD (SSK) Ltr to AFSC and Hq USAF, subj: Request for Determination and Findings Pursuant to AFPL 3-214, 8 Jul 66.
283. SSD (SSVA) Ltr (Uncl v/o C/Gp4 Atchs 2, 4, 5 & 8), subj: Historical Report for the Period of 1 January 1966 - 30 June 1966, 29 Jul 66.
284. SSD (SSV) Ltr to SSOS (Gen Martin), subj: Agena Guidance and Control Subsystem Development, 1 Feb 67, (C/Gp3).
285. SSD (SSVA) Ltr (Uncl v/o C/Gp4 Atch 2, 7, 8 & 9) to SSV, subj: Historical Report, 1 Jul 66 to 31 Dec 66, 3 Feb 67.
286. DAF Ltr (C/Gp3) to SSVA, subj: Attitude Control System Configuration, 6 Feb 67.
287. DAF (SP-7B) Ltr to SSVA (Major Bell), subj: Standard Agena Allocation, 13 Feb 67.
288. AFRL (RFO) Ltr to SSD (SSGV/Col D. V. Miller), subj: Advanced Agena Development, 26 Mar 67.
289. SSD (SSVAP) Ltr (S/Gp3) to SSKS (Mr. McClellan), subj: Users of Standard Agena Vehicle, 7 Apr 67.
290. SSD (SSVA) Ltr to SSV (Col Hamilton), subj: Improved Agena Development Program, 28 Apr 67.
- 290a. Briefing Charts (S/Gp3), Report of Special Board on Agena Procurement, SAPEP 7, 1 May 67.
- 290b. Mag (C/Gp3), Cite SSO 67-12, 24 May 67.
- 290c. Mag (C/Gp4), Cite SCSA 22931, 262111, 67, May 67.
291. SSD (SSV) Ltr to SAPEP (Gen Martin), subj: SSD Position on SAPEP Proposal for a New Production Management Concept for Agena, 2 Jun 67.
292. MFR and Maj Robert R. Crawford, 7 Jun 67.

290. SAC (W/2) to SAC (Gen Martin), subj: Improved Agency Requirements, 21 Jun 67.
291. SAC (W/2) to multiple addressees, subj: Improved Agency Requirements, 21 Jun 67.
292. SAC (W/2) to SAC (Gen Martin), subj: Customized Standard Agency, 21 Jun 67.
293. SAC (EP-1) Ltr (C/Op3) to SAC (Gen Cooper), subj: Improved Agency Requirements, 21 Jun 67.
294. SAC (W/2) to Robert F. Crawford, subj: Improved Agency Requirements Meeting, 28 Jun 67.
295. Briefing Charts on Agency D and E Management Problems, 11 Jul 67.
296. SAC (W/2) Ltr (Uncl v/o C/Op4 Atch 5 and 8) to SAC, subj: Historical Review, 27 Jul 67.
297. Program Plan, subj: Customized Standard Agency, Support Engineering Program Plan, Contract FO469-67-C-0092, 27 Jul 67.
298. Briefing Charts, subj: Standard Agency, 28 Jul 67.
299. SAC (W/2) Ltr to SAC (Gen Martin), subj: Agency D Contract Structure, 2 Aug 67.
300. SAC (G.O) Ltr (C/Op4) to SAFSP (Gen Martin), subj: Improved Agency Flight Test, 11 Aug 67.
301. SAC (EP-1) Ltr (C/Op3) to SAC-2 (Gen Cooper), subj: Improved Agency Flight Test, 18 Aug 67.
302. SAC (W/2) Ltr to SAFSP (Gen Martin), subj: New Production Management Concept for Agency, 22 Aug 67.
303. SAC (EP-1) Ltr (C/Op3) to SAC-2 (Gen Cooper), subj: Improved Agency Flight Test, 25 Aug 67.
304. SAC (EP-2) Ltr (C/Op3) to SAC (Gen Martin), subj: Improved Agency Flight Test, 25 Aug 67.
305. SAC (EP-1) Ltr (C/Op3) to SAC-2 (Gen Cooper), subj: New Production Management Concept for Agency, 8 Sep 67.
306. Memorandum for Gen O'Neil (C/Op4) and Maj Gen Paul F. Cooper, subj: New Production Management Concept for Agency, 18 Sep 67.
307. SAC (W/2) Ltr to SAC (Gen Martin), subj: Custom Agency Briefing to Gen Martin, 19 Sep 67; v/a Atch: Briefing Charts, subj: Custom Agency.

~~CONFIDENTIAL~~

140

AKT089
PP RJWZBK
DE RJWZKD 64
P 052324Z
FM HQ USAF
TO RJEZFF/AFSC ANDREWS AFB MD
INFO RJWZBK/SSD INGLEWOOD CALIF
RJEBOQ/AFLC WPAFB OHIO
RJESEN/WRAMA ROBINS AFB GA
BT

CONFIDENTIAL FROM AFSSV-EQ 90915
ACTION AFSC FOR SCOM. INFO SSD FOR SSDX, WRAMA FOR WRU. REFERENCE IS MADE TO AGENA D PRESENTATION BY COL. KUCHEMAN AT HQ USAF ON 3 JANUARY 1962. THIS MESSAGE IN 7 PARTS. PART I PROGRAM MANAGEMENT, ORGANIZATION, PRODUCTION PLAN AND FACILITIES PLAN FOR THE BASIC AGENA D ARE CONCURRED IN. PART II TOOLING, INDUSTRIAL FACILITIES AND MANUFACTURING TEST EQUIPMENT WILL BE PROVIDED FOR PRODUCTION CAPABILITY OF FIVE VEHICLES PER MONTH. YOU ARE AUTHORIZED TO PERMIT LMSC TO SCREEN INDUSTRIAL RESERVE AND PLACE HOLDS IMMEDIATELY. TO MAXIMUM EXTENT POSSIBLE MACHINE TOOLS AND TEST EQUIPMENT

PAGE TWO RJWZKD 64
SHOULD BE OBTAINED FROM THE INDUSTRIAL RESERVE. SUPPLY CONTRACT TERMINATION INVENTORIES SHOULD ALSO BE THOROUGHLY SCREENED FOR USEABLE TEST EQUIPMENT. PART III PROCUREMENT OF A MAXIMUM QUANTITY OF 39 VEHICLES SCHEDULED AT A RATE NOT TO EXCEED FOUR PER MONTH UNDER THE FOLLOW-ON CONTRACT IS APPROVED. FUNDING FOR NECESSARY LONG LEAD TIME ITEMS WILL BE WITH FY-62 FUNDS. CONTRACTOR COMMITMENTS WILL BE HELD TO A MINIMUM CONSISTENT WITH PROTECTING CONTRACT DELIVERY SCHEDULES. PART IV. INDUSTRIAL FACILITY AND SUPPLY CONTRACT FUNDING AUTHORIZATIONS NECESSARY TO SUPPORT THE ABOVE DIRECTED AGENA D PROGRAM ARE SUBJECTS OF SEPARATE ACTIONS. PART V. VEHICLES ON THE FOLLOW-ON CONTRACT WILL USE THE PRIORITY ASSIGNED TO PROGRAMS USING AGENA D. PART VI. PRESENTATION OF PERTINENT TERMS OF INITIAL CONTRACT AS REQUESTED IN PART IV OF HQ USAF MESSAGE AFSPN TO AFSC DATED 22 NOVEMBER 1961 WILL BE SCHEDULED AT HQ USAF ON 19 JANUARY 1962 AS AGREED IN ABOVE REFERENCED PRESENTATION. PART VII. THIS HQ HAS GREAT RESERVATIONS RELATIVE TO SSD'S PLANS TO HAVE INDIVIDUAL USING PROGRAM OFFICES PROCURE HARDWARE AND SERVICES ASSOCIATED WITH INSTALLATION AND CHECKOUT OF MISSION PECULIAR ITEMS DIRECT FROM LMSC. CONCERN IS THAT HAVING NUMEROUS OFFICES CONTRACTING WITH, AND GIVING DIRECTIONS TO, LMSC WILL NOT PROVIDE

PAGE THREE RJWZKD 64
THE NECESSARY PROGRAM COST CONTROL TO TAKE FULL ADVANTAGE OF THE AGENA D STANDARDIZED CONCEPT. AN ALTERNATE APPROACH WOULD BE TO PLACE RESPONSIBILITY FOR PROCUREMENT OF AGENA MISSION PECULIAR EQUIPMENT AND ASSEMBLY AND CHECKOUT SERVICES UNDER ONE OFFICE AT SSD. SUCH AN ARRANGEMENT IT IS BELIEVED WOULD PLACE THE AIR FORCE IN THE MOST FAVORABLE NEGOTIATING POSITION RELATIVE TO THE CONTRACTOR AND ENHANCE THE AIR FORCE ABILITY TO CONTROL PROGRAM COSTS FOR ALL PROGRAMS. ALSO OF CONCERN IS THE NEED FOR CONTROL OF MODIFICATIONS IN CONNECTION WITH INSTALLATION AND CHECKOUT OF MISSION PECULIAR ITEMS TO INSURE THAT THE BASIC AGENA D STANDARDIZED CONCEPT IS NOT COMPROMISED. IN LIGHT OF THE ABOVE, REQUEST AFSC PRESENT DURING THE 19 JANUARY PRESENTATION AT HQ USAF THE SSD ORGANIZATIONAL ARRANGEMENTS WHICH WILL PROVIDE FOR MAXIMUM COST AND CONFIGURATION CONTROL OF AGENA VEHICLES BY INDIVIDUAL PROGRAM AND COLLECTIVELY FOR ALL PROGRAMS.
BT
05/2329Z JAN RJWZKD

IC-274

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

AF 04(695)-21

~~CONFIDENTIAL~~

141

SSX

5 January 1962

MEMORANDUM FOR RECORD

12

SUBJECT: Briefing to Dr. Charyk

Attendance List

- Dr. J. Charyk
- Dr. B. McMillan
- Mr. Imirie
- Mr. D. Jackson
- LtGen Ferguson
- MajGen Holzapple
- BrigGen Curtin
- BrigGen Smith
- Col Sinex
- Col Mare
- Col Kucheman
- Col Fletcher
- LtCol Keeffe
- LtCol E. Blum
- Maj Erwin
- Mr. F. O'Green

307

1. At 0900 hours, 3 January 1962, Colonel H. B. Kucheman, Jr., briefed Dr. Charyk and the above listed attendees on the Program Plan for Program 662A, as directed by Hq USAF message AFSDC-F 82350. Mr. F. O'Green of LMSC also gave a short status report on the program progress to-date.

2. As Colonel Kucheman started the introduction, Dr. Charyk interrupted to ask about a SSD message to Hq AFSC concerning support of the Discoverer and other Thor boosted programs. He asked if the Agena D was unable to meet scheduled launch dates or was it a Thor problem. Members of the Air Staff were vaguely familiar with the problem and explained that the shortage of Thor boosters apparently will necessitate allocation of the available boosters to the Discoverer program and conjectured that this might result in a shortage of Thor boosters for NASA programs. Colonel Kucheman indicated that although he was not familiar with the Thor procurement status or the SSD message, progress and schedules would indicate that Discoverer would not be Agena D limited.

DOWNGRADED AT 3 YEAR INTERVALS;
 DECLASSIFIED AFTER 12 YEARS.
 DOD DIR 5200.10

~~CONFIDENTIAL~~

SSX-5

~~CONFIDENTIAL~~

3. Colonel Kucheman presented the management channels and organizations approved by AFSC and specifically set up to accomplish the expedited schedule of the Agena D. The plan was accepted, as presented.

4. The SSD approved composite launch schedule, Agena D, DD-250, and final assembly schedules were explained in detail and accepted without discussion. Particular emphasis was made of assignment of the initial twelve vehicles to Discoverer and the fact that SSD had thoroughly "scrubbed" the launch schedule eliminating all questionable DOD requirements and deleting NASA in toto. Mention was made of the forthcoming 15 January briefing to NASA and the fact that their requirements would not be known until that time.

5. Mr. O'Green next gave the status report, indicating some problem areas, such as, wiring drawing release, sub-contract items in short supply, and late design freeze. Regarding the latter, he emphasized the problems involved but stated they were working hard to overcome these problems. Next he described the characteristics of the drawings and specifications being used and indicated that they were adequate for Agena D manufacture but did not fully comply with military specifications. The description he gave made it sound as if the Agena D "skunk works" drawings were superior to military specifications and that the LMSC manufacturing personnel liked them very much. His statements were, at best, biased. The drawings being used are LMSC drawings, they do not fulfill the military specification format and reproducibility requirements but are considered by the program office to be adequate for manufacture and in conformance with our Hq USAF directives. Mr. O'Green next stressed the fact that LMSC had been fully funded and was on a "spoon-fed" basis to-date. He concluded presenting a status of sub-contracts, and a total weight-statement-comparison between a Discoverer Agena D and Discoverer Agena B. The Agena D version was shown to be lighter by six pounds.

6. Colonel Kucheman, indicating that the next item was in direct response to direction received from Hq USAF, then gave a discussion on the industrial facilities required to support the Agena D program assuming as a basis for the study that creation of a separate manufacturing facility at LMSC was desired. It was pointed out that the recommended plan was a compromise between the extreme of achieving maximum economy and the extreme of complete segregation of facilities. The assumptions and conditions of the study were identified as, continuing to utilize the extremely large machinery in Building 103,

augmentation of the existing qualification and reliability testing facilities in Building 162, and Santa Cruz testing facilities, etc. It was acknowledged that the basic program would be accomplished before any additional facilities were scheduled to be available. A general discussion followed and Mr. Imirie stated he would like Mr. Don Jackson to look into this after the briefing. Factors covered included production requirements and differences between facility costs for three, four and five vehicles per month. Mr. O'Green was excused from the presentation at this point.

7. In presenting the programming and fiscal section, Colonel Kucheman gave the responsibilities of the Agena D Program Office and those of the using program office. He stressed the fact that the using program would pay for the vehicles at time of delivery, defined as "the month of acceptance (DD 250) by the Agena D office." He stated that the program office would incrementally fund for the optional and mission peculiar equipments which would be procured under the mission peculiar contract. It was stated that at the present time, consideration was being given to the possibility of procuring and stocking selected items of the optional equipment under the Agena D contract and that a decision was expected on the procurement procedures in the near future. A discussion followed concerning what was being installed in the Agena D on the production line. It was stated that just a basic Agena D would be produced and would be customized only to the extent of selection of a FM/FM or PAM telemetry system before acceptance. Mr. ██████████ stated this was not our present experience on current booster programs and that no doubt the request for additional program modifications would creep into the production line. He was assured that installation of optional and mission peculiar on the Agena D line was not planned; however, we could not pre-judge the future. Certainly it was our intention to make every possible effort to preserve the standardized agena concept.

8. Colonel Kucheman reiterated the SSD intention to effect program peculiar mods, systems test and launch under the individual LMSC contracts for each program. At this point both Mr. Meyers and Dr. Charyk pointed out that this approach was contrary to their understanding of the Standard Agena concept. They both stated that they wanted all mods to be made under a single contract and proposed using the Agena contract.

9. An extended discussion of the responsibilities of the Agena D and other program offices ensued. At first it appeared that Mr. L. Meyers, Mr. Imirie, and Dr. Charyk had misunderstood the basic concept of the

Agena D. As it turned out, they were thinking of an extension of the concept wherein the Agena D contract should be responsible for the procurement optionals and mission peculiar equipments and program mods. Their concern stemmed from their apparent desire to have one man with complete control over the whole area. Colonel ██████████ pointed out that this was General Ritland's responsibility and that the mission program directors were individually responsible for the optional and peculiar items selected to accomplish their individual missions. Further, it was pointed out as a personal opinion, that "to deprive the program office of this responsibility was contrary to our organizational structure and would render the program office impotent."

10. As a result of the exchange of comments and the general opposition voiced by the SSD representatives and General Smith, Dr. Charyk apparently modified his position and stated that if it were not feasible to have the Program 662A Directorate fulfill this role, a single point of contact to work with the 662A Program must be established. General Smith voiced the opinion that it should be the AFPR and Colonel ██████████ again pointed out that General Ritland and Colonel Evans now serve in this capacity.

11. Dr. Charyk directed that Colonel ██████████ advise General Ritland that he desired that an SSD management plan for the procurement of optional equipment and mission peculiars be provided him when the pre-negotiation was brought to Washington for his review, (tentatively 19 January 1962). The management plan should consider both technical and contractual responsibility and clearly spell out the procedures to be utilized to preclude the recurrence of overhead and personnel cost being shifted among USAF programs by LMSC after program adjustments, i. e., Program #1. Dr. Charyk cited several examples where it had apparently cost additional funds to delete launches and cancel programs. It is obvious that the requested plan cuts across all SSD programs using the Agena stage and therefore should be a well thought-out and coordinated document.

12. Colonel ██████████ next showed a chart giving a detail comparison between the 17 November 1961 ROM (39.9) and the firm proposal, as received 15 December 1961 (39.6). He indicated where the changes were. He advised the group that a pre-negotiation briefing was planned for 19 January 1962 at SSD and invited the interested members of the

Air Staff to attend. This would be SSD's compliance with Hq USAF message AFSDC-F 82350. After a brief discussion, Dr. Charyk stated that because of the wide interest in the Air Staff on this contract, it was his desire that the 19 January briefing be given in the Pentagon.



14. At this time Dr. Charyk indicated that he had an 1100 appointment and requested that the recommendations be presented as briefly as possible. This was done and after reviewing the four recommendations Dr. Charyk indicated agreement in principle and requested Mr. Lew Meyers and Mr. Don Jackson to stay and review in detail the fiscal aspects and facility requirements.

15. The meeting adjourned at 1110 hours. There were several favorable comments made concerning the presentations by the attendees.

16. Immediately following Dr. Charyk's departure, the portions of the briefing pertaining to funds and facilities were again reviewed. Mr. Jackson, after numerous questions, indicated he was satisfied with the facility package and that he would recommend approval to Mr. Imirie. He commented that the production rate of 4/month was appropriate and that facilities to permit a production rate of 5/month was logical. Colonel Kucheman reminded him that a decision on the package was needed as soon as possible in order to permit the appropriate enabling clause to be inserted in the -21 and -68 contracts. Mr. Jackson left to consult with Mr. Imirie. Mr. Meyers continued his inquiry into the fiscal requirements for long lead follow-on buys. After inspecting our

method of determining these funds he attempted to draw a comparison using Colonel Phillips' technique and planning factors for Atlas to prove the point that the FY 1962 requirement for [REDACTED] was excessive. Using Mr. Meyers factors, the need was computed to be [REDACTED]. At this point the meeting broke up with Mr. Meyers requesting that the long lead fund requirements be re-computed and re-submitted. Mr. Meyers also indicated he planned to recommend the follow-on contract be funded with 200 series monies. It was later learned that Mr. Hoover disapproved this recommendation.

17. A telephone call was made to SSD (General Greer) to relay the result of the meeting.

18. At 1410 hours Colonel Kucheman and LtCol Keeffe were requested to meet with Mr. Don Jackson. A discussion followed which lasted approximately one hour covering the results of Mr. Jackson's meeting with Mr. Imirie. Mr. Jackson indicated that Mr. Imirie wanted to threaten LMSC with second-source procurement and/or work out some incentive fee formula which could be used as a lever to control the contractor. It was pointed out that the whole proposition of second source had been thoroughly studied and reviewed by both Dr. Charyk and Dr. Rubel with the conclusion that second source was neither feasible nor desirable at this time. We assisted Mr. Jackson in preparing a written memorandum to Mr. Imirie pointing out what had occurred. In the memorandum Mr. Jackson recommended adoption of our recommendations in detail. Mr. Jackson additionally recommended that the test equipment inventory and industrial reserve of machine tool be thoroughly reviewed to attempt to reduce the cost.

19. Colonel Kucheman requested LtCol Keeffe to prepare a message summarizing the results of the day's activity. Departed Pentagon at 1530 hours.

SIGNED

HENRY B. KUCHEMAN, JR
Colonel, USAF
Deputy for Agena

142

**HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 33, California**

REPLY TO
ATTN OF: **SSKD/SV/Col Kucheman/21253**

subject: Fund Requirements for Program 662A

11 January 1962

TO: **See Distribution**

3-2-1
1. On 3 January 1962, Dr. Charyk, Under Secretary of the Air Force, was briefed on the status of Program 662A. During the course of this briefing, the fiscal requirements for the basic (-21) and follow-on (-68) contracts were described in detail. The follow-on contract requirements had been computed, assuming a production rate of 5 Agena D's per month. Mr. Meyers challenged the magnitude of cost (\$16M) and asked for a detailed justification. It was explained that if the production rate were adjusted downward to 4 vehicles per month, as had developed in the discussion, the long lead-time requirement would be reduced to \$13M. After subsequent discussion, Mr. Meyers requested that we recompute this requirement and have it available when he visited the West Coast on 9 January 1962.

2. In the intervening period, approval of the recommendations concerning organization, management channels, production rate, number of vehicles to be procured, and facilitization for a production rate of 5 per month was approved by Hq USAF. No funds were provided, however, for it was indicated that they would be forthcoming by a separate message. A follow-up conversation with Lt Col Keeffe revealed that Hq USAF was in the process of releasing a message citing both reimbursable funds and Discoverer Program money to meet the fiscal needs of Program 662A. I requested Lt Col Keeffe to enjoin the Air Staff not to dispatch the message until I had an opportunity to discuss our requirements with Mr. Meyers.

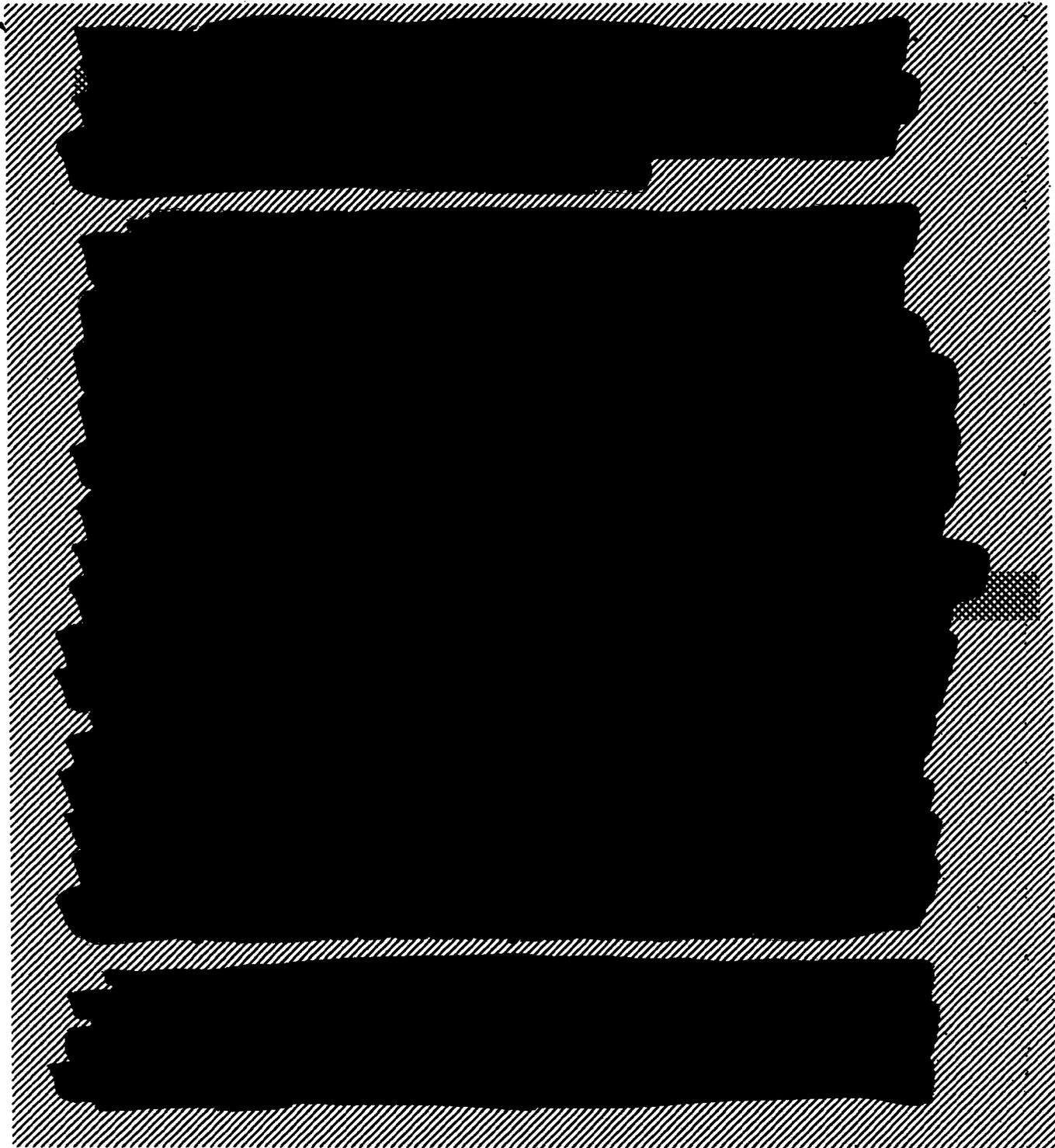
3. On 9 January, Mr. Meyers, Hq USAF, Col Eugene Phillips, Hq DCAS, and I spent about an hour going over the fiscal requirements for Program 662A and specifically discussed the following points:

b. The next point discussed pertained to the technique of funding, i.e., the degree to which reimbursable funds would be used. Pointing out the advantages and disadvantages of mixing programmed funds and reimbursable funds and analyzing each, I made the recommendation that

DOWNLOADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

~~CONFIDENTIAL~~

SSX-3



347

e. The subject of funding the facility requirements came up, and I pointed out that the monies necessary for facilities were additive and were not provided for in any of the fiscal requirements cited above. Specifically, I pointed out that we needed authority to negotiate an enabling clause in the -21 Contract (not to exceed [redacted]) and that we fully expected to be able to reduce this cost substantially below the requested limit. Mr. Meyers asked Col Phillips to check-out the legality of negotiating the enabling clause without actually providing funds which could be obligated. As I understood his question, he wanted to establish whether monies legally must be set aside to cover the full extent of the enabling clause, or whether only the actual requirement need be covered at the time the expenditure was approved. Further, he indicated that Hq USAF was anticipating that the total cost of facilitization of Agena D would be reduced to a total cost between [redacted] by making maximum utilization of industrial reserve machine tools and test equipment currently available as a result of numerous Government contracts recently having been terminated. Col Phillips acknowledged that he would check out the legal question concerning the enabling clause.

4. I summarized the meeting indicating that:

[redacted]

1044

[redacted]

c. That Col Phillips, assisted by the Program 662A Office, would prepare the schedule against which using programs should transfer funds to the Agena D Program to amortize development costs.

d. That a unit cost of [redacted] per vehicle would be utilized until R & D cost for the Agena D was amortized.

e. That the requirement for [redacted] for the follow-on (-68) contract was recognized.

5. Mr. Meyers and Col Phillips acknowledged my summary, and I suggested that the results of our meeting be reviewed by Gen Greer. Mr. Meyers indorsed this recommendation and made an appointment with Gen Greer.

6. In the meeting which followed immediately, the results of the conference described above were given to Gen Greer and Col Evans by Mr. Meyers, Col Phillips, and myself. I specifically pointed out the following: (1) the difference in unit cost proposed by Mr. Meyers;

(2) the changed technique of using reimbursable funds; (3) the intention of amortizing cost among using programs; and (4) the intention to direct the reprogramming of using program monies to an Agem. D line item. Col Evans requested Mr. Meyers to direct us to use the ~~reimbursable~~ reprogramming factor, and Gen Greer and Col Evans both indicated concurrence in the agreements reached.


HENRY E. KUCHEMAN, JR.
Colonel, USAF
Director, Program 662A

DISTR:
Gen Greer
Col Evans
Col Phillips
Col Battle
Maj Hegerle

CONFIDENTIAL

SSX-3

143

MEMORANDUM
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Civil Post Office, Los Angeles 44, California

MEMO TO
ATTN ON SSVK/Capt. Sberline/21D 4028

subject: Sole Source Justification for Complexes 75-3 and 75-1 18 JAN 1962

to: SSVK (Mrs. Arnold)

349

1. The authority to modify the Discoverer complexes at Vandenberg AFB, 75-1 Pad 1 and 75-3 Pads 4 and 5, to the Agena D configuration was received on 4 Dec 61. The launch schedule calls for the first Agena D launch in June, 1962, with Agena D launches each month thereafter. LMSC is currently under contract for the necessary LMSC changes to the launch complexes, and it is now necessary to place the Douglas Aircraft under contract to accomplish the changes required by Douglas based on criteria supplied by LMSC. In light of the short time span to accomplish these changes prior to the first scheduled Agena D launch, it is imperative contractual action be taken immediately with Douglas as a sole source contractor.

2. It would be impossible for any other contractor than Douglas Aircraft to accomplish the modifications in the short time span required, for the following reasons:

- a. Complex 75-1 and 75-3 were constructed by Douglas.
- b. The complexes are maintained by Douglas.
- c. The engineering and drawings are available at Douglas.
- d. The modifications to the launch complexes are to equipment designed and built by Douglas.
- e. Douglas is the only contractor familiar enough with the complexes to be able to start work immediately and thus meet the launch schedule.

3. Because of the intimate working relationship between LMSC and DAC developed over the years of the Discoverer Program, much of the engineering and work has been done on an informal basis. This information

and detail could not be readily available to any other contractor. In our opinion, it would be impossible for any other contractor to do the modifications without considerable additional time and effort in duplicating what has already been accomplished by DDC.

J. S. Buzgath

C. L. BATHS
Colonel, USAF
Director

DISCOVER Satellite System

05E

~~CONFIDENTIAL~~
CONFIDENTIAL

SSXD. *[Handwritten]*

144
[Handwritten signature]

18 JAN 1962

SSXDA

Agema D Performance Data

SSZNE (Major Lochry)

1. Performance information on the Agema D must be considered as preliminary at this time until completion of manufacturing effort on the first vehicles. The performance parameters are sufficiently like the Agema B that performance analyses for that stage can be used. Errors would appear only in the burnout weight of the Agema D stage and totals based on it.

2. The following performance is available from Atlas-Agema D launch vehicles.

<u>At 90 mile Circular Polar Orbit.</u>	<u>Without Restart</u>	<u>With Restart (200# propellant)</u>
Injection wt	6750	6500
Propellant & residual wt	110	310
Usable wt	6640	6190
Agema D wt	1500	1500
Available wt for mission peculiar equipment	5140	4690

The possible variation in Agema weight from that shown in the table is + 50 pounds. Variation of perigee altitude causes an inverse effect on payload with a loss of 200 pounds in burnout weight in changing from 90 to 120 nautical miles perigee. The effect of eccentricity is to decrease capability 50 pounds if .005 is desired. Variation of payload with orbital inclination is from a 100 pound increase to a 300 pound decrease over the tabulated numbers as inclination varies from 5° prograde to 15° retrograde. Both numbers depend on method of achieving the orbit, so they must be considered estimates.

SSXDA/Capt. Fiebelkorn/dd
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10
13 Jan 62

~~CONFIDENTIAL~~

CONFIDENTIAL

SSX-4

~~CONFIDENTIAL~~

1. Orbital lifetime is very sensitive to altitude and eccentricity in the ranges specified with as much as an order of magnitude variation in life from the lowest to the highest perigee altitude. The specific number of orbits that the vehicle would make is also sensitive to latitude of injection for these limited life orbits. An approximation of the life, no better than 50% accurate at this time, is 27 orbits for the 90 nautical mile injection and 230 orbits for the 120 nautical mile case giving a life of 1.6 and 13.9 days respectively.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agena

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

MEMO ROUTING SLIP		FORM NO. 1 JAN 50 (REVISED MAR 1954) (REPLACES DD FORM 94, 1 FEB 50 AND DD FORM 95, 1 FEB 50 WHICH WILL BE USED UNTIL EXHAUSTED)		OFFICE
1	TO	SSG (General Ritland)		DATE
2				CONTINUATION
3				FILE
4				INDEXED
				NOTE AND RETURN
				PER CONVERSATION
				SEE ME
				SIGNATURE
REMARKS				
<p>WE are fully funded (FY62) now —</p>				
BY		Colonel Kucheman SSX		DATE
				25 Jan 62
				FORM
				3084 R&D

DD FORM 95

Replaces DD Form 94, 1 Feb 50 and DD Form 95, 1 Feb 50 which will be used until exhausted.

★ GPO: 1959-O-58284

145

SSX

23 January 1962

MEMORANDUM FOR RECORD

Information was received this date through LtCol Keeffe, Hq USAF, and Capt Santone (DCCBS), to the effect that a BA for 31.4 million dollars of reimbursable P-630 money for Agena D (662A Program) is being mailed this date. These funds are on Budget Authorization #38, dated 23 January 1962, from Hq AFSC.

SIGNED

HENRY B. KUCHEMAN, JR
Colonel, USAF
Deputy for Agena

146

~~CONFIDENTIAL~~

SSX

24 January 1952

MEMORANDUM FOR RECORD

SUBJECT: 18 January - 19 January Agena D Briefing

1. In response to Hq USAF messages of 5 and 11 January, cite AFSSV-EQ 90915 and AFSSV-EQ 92056, Colonel Fletcher, Mr. Silberman and I briefed MajGen Mitchell, Colonel Nudenberg and Colonel Sinex, Hq AFSC, on 18 January, MajGen Thurman, MajGen Holzapple, BrigGen Smith and members of the Air Staff at 0900 hours 19 January, and Dr. Charyk, Mr. Imirie, MajGen Thurman, BrigGen Smith, BrigGen Curtin, Mr. Warren, Mr. Lew Meyer, and Mr. Don Jackson at 1100 hours on 19 January.

2. General Mitchell received the briefing without criticism and approved it for presentation to the Air Staff. General Mitchell acknowledged that he understood that the AF position which had been established by Hq SSD was the "going-in" position and, therefore, subject to change by negotiation. Additionally, he complimented the Division for diligently striving to comply with the Hq USAF guidance for the fee formula. I requested MajGen Mitchell to relay his comments to General Thurman via telephone since he would not be able to personally attend the meetings scheduled the following day. He indicated he would be glad to convey his comments to General Thurman. No members of the Hq AFSC procurement staff were in attendance. It was explained that the "SSD organizational arrangements" requested by Part VII of the 5 January Hq USAF message had been deferred as a result of LtGen Estes call to MajGen Holzapple on 17 January and would not be presented to the Air Staff or Dr. Charyk.

3. General Thurman reviewed the Pre-Negotiation in detail, asking many questions and making several recommendations. His reaction and comments are summarized as follows:

a. General Thurman indicated surprise that the presentation was a pre-negotiation briefing, stating that he had expected to hear "what had been negotiated with Lockheed." Colonel Fletcher explained that we were anxious to receive their guidance and comments before rather than after-the-fact in order that the negotiation could represent their views and still be negotiated in Los Angeles. General Thurman acknowledged our reasoning as being sound and appropriate.

DED AT 3 YEAR INTERVALS;
SIFIED AFTER 12 YEARS.
DOD DIR 5200.10

~~CONFIDENTIAL~~

SSX-6

~~CONFIDENTIAL~~

b. He indicated surprise when informed that the first flight article was scheduled for final assembly acceptance test on 16 April and commented that he thought first delivery and not first launch was in June. In the ensuing discussion, he at first appeared to question the wisdom of continuing on the CPIF approach to the contract, indicating that he would like to "ruminate over" the approach pending the briefing to Dr. Charyk.

c. He recommended that the same "floor" be established for "schedules" as would be negotiated for "cost" and "performance" criteria, i. e., -1%. This had the effect of changing the minimum fee to -1% across the board in the SSD position. He then complimented the logical approach being proposed and approved the briefing for presentation to Dr. Charyk indicating he would be present. General Holzapple had no specific comment or criticism.

4. As in the case of the previous two briefings, the briefing to Dr. Charyk was preceded by a status report. The items covered in the status report were as follows:

a. NASA reaction to the 15 January Agena D Design Review -- generally favorable, fulfilled major NASA design objectives, detailed comments expected in two weeks.

b. Financial guidance under which SSD was funding the Agena D -- This material was reviewed in detail. The presentation resulted in expressions of amazement and the comment "that this was the first time an R&D program had been conducted 'without funds'." The comments were jocular in nature. Mr. Meyer explained the necessity for the actions being taken. Dr. Charyk indicated concurrence. Subsequently, LtCol Keeffe indicated that we could expect to receive a Budget Authorization for the required 31.5M FY-62 reimbursable funds by 22 January 1962. (SEE ATCHD.)

c. The third status item consisted of a brief review of the actions taken (and contemplated) by the Program Office concerning industrial facilities. Our intention to negotiate an enabling clause of 4.449M in the -21 contract was pointed out. It was explained that we hoped to reduce the actual fund requirement to not in excess of 2.0M by acquisition of machine tools and test equipment through the industrial reserve review action. Dr. Charyk nodded concurrence. It is understood that Mr. Don Jackson has prepared a PA protecting our 4.449M

requirement for facility funds. I was not informed when we may expect to receive official notification of Hq USAF action, however.

5. Colonel Fletcher, as previously, then presented the pre-negotiation briefing incorporating MajGen Thurman's guidance. At the point in the briefing where "product improvement" funding was analyzed, Mr. Meyer raised the question as to exactly what was intended by "product improvement." This question precipitated about a 15 minute discussion on whether the Agena D was to be "product improved." Our intentions were thoroughly discussed and analyzed. At first, Dr. Charyk appeared hostile and Mr. Imirie and MajGen Thurman commented that we were already planning modifications to the "Standard" Agena. I explained the need for continued studies of our known weaknesses and emphasized that we desired to improve the reliability of the Agena D over that which I personally expected to result from "production engineering" the Agena B. Specifically, I pointed out that the rapidity with which the design had to be frozen made it mandatory that we re-package and utilize many Agena B qualified components without improvement. Additionally, that the product improvement efforts would be a level of study effort, rigorously controlled by funds and further that all items to be studied would receive prior concurrence by the Air Force Program Office. It was pointed out that none of the activity under this section of the contract would receive incentive fee or produce hardware in time for inclusion in the basic contract. After this explanation, Dr. Charyk acknowledged the need for what is in our contract with the provision that it be rigorously controlled and that the first 12 vehicles be made as nearly identical as possible.

6. There was considerable discussion over the incentive fee formula. General Thurman gave a detailed analysis of the pros and cons of CPFF versus CPIF and recommended CPIF. Dr. Charyk approved the SSD pre-negotiation position and directed that we proceed. As he was leaving, he commented in passing that he anticipated that this would be a "hard position" to negotiate.

7. General Smith left the room with Dr. Charyk and later returned to inform his staff, Colonel Fletcher, and me that Dr. Charyk and Mr. Imirie were complimentary in their remarks to him concerning both the briefing and the recommended position. The briefing was concluded at 1245 hours.

SIGNED

HENRY B. KUCHEMAN, JR
Colonel, USAF
Deputy for Agena

147

SSWII, Capt Jensen/ OS 9-4661-153:

Additional Instrumentation on Discoverer Flights

5 February 1962

SSSD (Maj Moore)

1. Reference your note, 25 Jan 62, same subject. The original investigation of the 20 CPS problem on Discoverer flights called for additional instrumentation to be installed on seven flights. The first four of these had the instrumentation installed in order to obtain data necessary to define the problems and determine the extent of same. This data, and the results of the separate tests run by HAA/Rocketdyne, indicated that a modification to the LOX pump inducer would reduce or eliminate the oscillation. The last three flights of the group utilized the added instrumentation to investigate several suspect areas, and to determine the effect of the inducer modification.

2. As you well know, the inducer modification had no effect on the problem oscillation, although Rocketdyne believes it has resulted in a smoother running engine. Because the problem continues to exist, the D/C-R/HAA study group has requested that additional instrumentation be carried on three more Discoverer flights. Essentially this program is an experimental one designed to identify the probable cause factors. No guarantee of results can be made, however, it is very possible that the data obtained could provide a possible solution for the problem. This office recommends that you authorize the installation of the additional instrumentation considering it from the viewpoint of eliminating a potential problem area. Your decision, of course, must be based on other factors, such as the deleterious effects on the Agena vehicle, payload requirements, extent of the Discoverer program and costs (the last three installations cost about \$4,500 per bird, not including TM (\$13,000) which is GFE). Therefore our budget estimate is \$17,500 each, and \$52,500 total for three.

3. Request that you inform this office as soon as possible of your decision on whether or not you desire to continue the investigation of the 20 CPS problem.

ROBERT L. BEERS
Lt Colonel, USAF
Director, Standard
Launch Vehicle II

148

SSXD

14 February 1962

MEMORANDUM FOR RECORD

SUBJECT: Discussions with Mr. O'Green and Staff, 13 February 1962

1. Subsequent to the Pipeline Meeting, I met with Mr. O'Green and discussed in some detail the following subjects with the results or agreements reached as follows:

a. I requested the status of:

(1) The Agena B versus Agena D Cost Comparison Study requested by telephone on 8 February 1962. Mr. Shoenhair indicated that the first cut of this study would be available 14 February, and that the latest systems run for the Discoverer vehicle indicated the total expenditure of 28,000 manhours.

(2) The Agena B versus Agena D Performance Comparison. Mr. Larry Edwards indicated that progress was being made; however, the material was not yet available.

(3) The Phasing Plan for transitioning from the -21 Contract to the -68 Contract. Mr. O'Green indicated that his plan was not yet completed, that he was still working on it, and that it would be discussed with his staff immediately following lunch.

b. I indicated that it was my feeling that the negotiations were "bogging down" and that I felt it necessary to establish what course of action LMSC recommended we follow if an impasse were reached. Mr. O'Green indicated his desire to have a meeting with Mr. Silberman and the other members of the team in one last effort to reconcile our differences. The meeting was scheduled for 1300 hours, 14 February 1962. I pointed out very directly to Mr. O'Green that the Air Force negotiator had been and would remain to be Mr. Silberman and that my presence in the meeting was not to be misconstrued for I, in no way, intended to take over the negotiations at this date. Additionally, it was pointed out that if we were unable to reconcile our differences, that I felt it was necessary to inform our respective chain of command because the passage of time had a definite influence on the appropriateness of the CPIF feature of the -21 Contract. At 1830 hours I contacted Colonel Harry Evans at SSD and informed him of the potential stalemate

and our plans and requested that he give consideration to what procedures I should follow if no progress was made tomorrow. We again discussed the feasibility of re-energizing the Kelly Johnson committee to review the progress made to date and to make recommendations to guide the remainder of the program.

c. A discussion of the Evans' ad hoc committees on test philosophy versus the Agena D concept followed. It was pointed out that the questions posed by the creation of the committees had organizational as well as technical implications and that I desired to have the Lockheed Agena D staff provide me with information with which to respond to the questions being asked by the AFSSD program directors. Specifically:

(1) Why is the DD-250 vehicle acceptance test necessary if the using program must subsequently run an integrated systems test?

(2) To what degree can optional equipment be installed on the Agena D "standard" assembly line?

(3) Can using program ascent guidance cards be utilized in the "standard" Agena D systems complex, i. e., C-3, C-5, and face? If not, what changes are necessary to permit the inclusion of this requirement?

d. What portions of the acceptance test need not be repeated in the program integrated systems run? Considerable discussion ensued pertaining to test philosophy, etc., and Mr. O'Green summarized by requesting that Lockheed be directed to study the problem for approximately one month and submit their findings and recommendations to AFSSD. He acknowledged that many of the comments of the AFSSD program offices were valid but cautioned that the course of action which we were to follow had to be carefully and thoroughly thought out or all of the potential gains of the Agena D could be lost. I countered this comment indicating that it was my personal feeling that all of the LMSC Program offices had known since 7 November 1961 that the Agena D was to be integrated into their respective programs and that they should have taken the initiative and already identified the answers to the questions being asked. Further, I requested Mr. O'Green to discuss the problem with Mr. Hawkins and for Mr. Hawkins to contact Colonel Evans directly relaying the LMSC position. I subsequently learned that Col Evans and Mr. Hawkins had discussed the matter by phone. I do not know the results of the discussion, however.

e. After lunch the major portion of the afternoon was spent defining exactly what comprised the "procurement package." Mr. Joe Wingerd was detailed to prepare a memo for file of the results of this meeting. Basically, it was concluded that for the vehicle procurement package, the primary things which were necessary were the engineering drawings and the acceptance or test specifications for all components of the Agena D to include Agena B, Agena D, and the sub-contractor items. In connection with this discussion, the subject of configuration control was reviewed and the necessary Air Force regulations subsequently given to Mr. Gordon Tigue by Colonel Fletcher for inclusion in the -68 Contract (AD-13) to the Air Force Program Office, the procedures by which configuration control could be implemented.

f. Lastly, the subject of cost and manpower control was discussed. I made a request that Colonel Fletcher and I be given weekly status information pertaining to actual expenditures and manpower. Mr. O'Green countered this request, indicating that it was company proprietary information and that our DD-1097 should be our management control document. This resulted in a 20 minute discussion pertaining to the soundness of the information contained in the DD-1097 and an analysis of the accumulative commitment and expenditure chart used in the Pipeline meeting. I pointed out to Mr. O'Green that his control chart was in error, that in fact the end position for January 31 revealed that the Agena D Program was ~~over~~ expended against the original ROM projection, and that apparently the cost projection curves had been changed. Subsequent discussion with Mr. Phillips and Mr. Anderson revealed that this was in fact true and that the current cost projection curve reflected the planning used by Lockheed in their 15 December 1961 definitive quote. Against this curve, the end position for January represented approximately \$1.5 million under the target. The future technique of presenting this information for analysis was discussed and agreed.

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Director, Program 662A

~~CONFIDENTIAL~~

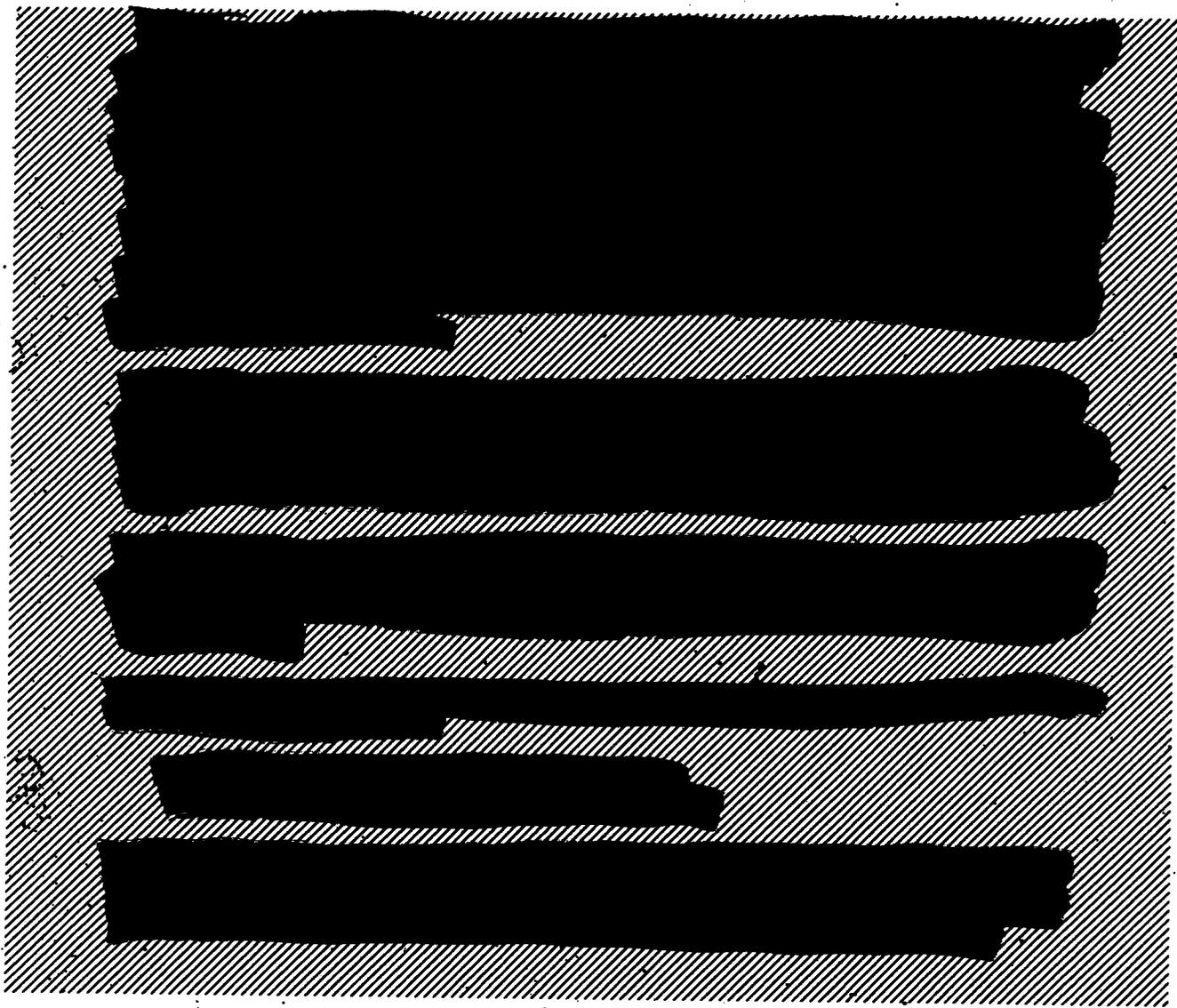
149

0021

20 FEB 1962

Subject: [Redacted]

- 002 (Col Smith)
- 003 (Col [Redacted])
- 007 (Col [Redacted])



SSXA
 Lt Col Smith
 12Feb62/vm

If inclosures are withdrawn (or not attached) the classification of this correspondence will be *Secret*

~~CONFIDENTIAL~~

SSXA-853

CONFIDENTIAL

7. The G133 Engines and the G153 Jet Gas Control systems are placed last on the List, which is organized in order of priority. These developments represent a considerable curtailment of funds and have not been established as firm requirements at this time. They should be considered in your long range plans.

8. It is requested that your program offices study the proposed development program with the intent of providing early funding so that this improved equipment may be placed in use as soon as possible.

SIGNED

WALTER B. MURPHY, JR.
Colonel, USAF
Deputy for Agent

2 Atch

1. Proj List -21 Contract (U)
2. Improvements List w/Justification (C)

If inclosure are withdrawn (or not needed) the destination of this correspondence will be *London*

CONFIDENTIAL

SSIA 853

~~MEMORANDUM FOR RECORD~~

26 February 1962

SUBJECT: Staff Visit of Maj Gen Ritland and Mr Kelly Johnson

1. Gen Ritland and Mr Johnson visited the Agena D Program Office, LMSC, this date, to accomplish an on-the-spot appraisal of the progress being made and the LMSC approach to the design of the Agena D.

2. Gen Ritland and Mr Johnson began their inquiry by a question-and-answer session, singling out first, the undersigned, and second, Mr O'Green. They requested that I present, in my own words, the current status of the Agena D Program. A summary of the material which I covered is contained in the outline which follows:

a. Design. I reported that technical briefings and design reviews had been accomplished with appropriate echelons within NASA and SSD/Aerospace. To date no derogatory or critical comments had been received from either DOD or NASA sources. It was my impression that the approach being undertaken by LMSC, as it was understood by potential future users, was favorably reacted to. Naturally, any agency which was forced to accept a "standard anything" had reservations because they were unable to control the design. Ignoring this fact, I was encouraged by the lack of comment by anyone that we had failed to satisfy their requirements. I pointed out that NASA was currently reviewing the latest schematics and that we were promised the final position, i.e., the Agena D, within a week or ten days. The recent SSD ad hoc inquiries into the Agena D concept were described briefly; I indicated that I did not know the results. Gen Ritland commented that it was extremely important that the Agena D concept be preserved and that the program offices not be permitted to distort the concept at this time.

b. Impact of Weight Reduction Program. I reported that Mr O'Green's staff had found it necessary to essentially redesign their initial configuration twice in the period of time from November to date. This activity in itself had resulted in compression of an already compressed or accelerated schedule to the point that I was concerned that supporting tests, which were necessary to qualify components before flight, were being forced out of phase with production of flight articles. Secondly, because of the delay which had been induced, the cost associated with repackaging the Agena D would be adversely affected. I reported that the current weight was estimated to be 1278.6 pounds for AD-1 and 1265.9 pounds for AD-6 against a dry weight on orbit target weight of 1326 pounds.

c. Hardware:

(1) Functional Test Mockup (FTMU)/C-5. I indicated that the FTMU and the C-5 Complex had been kept on schedule and apparently were proceeding satisfactorily. No major faults or corrections had been reported to the Air Force Program Office.

(2) The Propulsion Test Vehicle Assembly (PTVA) had been given a hot firing last week which consisted of two burns and confirmed that the Orifice Pressurization System apparently was working satisfactorily. Detailed test data had not as yet been reduced or analyzed.

(3) The Structural Test Vehicle (STV) and Thermal Test Vehicle (TTV) have been fabricated and, though late, were now in test to date. No results of the test had been reported to me.

(4) AD-1. The installation and test of AD-1 had slipped approximately four days; however, the final assembly period was still scheduled for the 3-16 March period which preserved the original target for AD-1. I was concerned about the availability of the hydraulic package (Lear Mark III) which was scheduled for 15 March delivery for installation in AD-1 and concurrent qualification test. I pointed out that this hydraulic package was being developed by Lear for the Lockheed Agena B organization and being incorporated into the Agena D. This procedure was in conformance with the ground rule requiring that the most reliable components available be integrated into the Agena D. I mentioned that the backup Agena B hydraulic system (-11) was being prepared to maintain schedule if the derated Lear package did not meet expectations. Pertaining to the Barnes Horizon Sensor, I indicated that I had reservations concerning its potential performance, based solely on the fact that engineering data had not yet been acquired to confirm that it would function as advertised. I backed up this statement pointing out that Midas flight (1202) had produced data which was encouraging but not conclusive and that with the exception of the Mercury shot (wherein components of the Barnes Horizon Sensor had been flown), no other engineering test data in the space environment was available. It was stated that Program 101 and Discoverer flight 1225/6 should produce additional data prior to the first launch of AD-1. Additionally, that we were engineering an ATL backup design to cover Discoverer requirements.

(5) AD-2 and subsequent flight items. I indicated that all information known to me confirmed that AD-2 and subsequent vehicles were on schedule.

d. Negotiations. I simply stated that negotiations on cost were deadlocked and that we had not reached the point where any discussions on fee or fee formula had been initiated. Lockheed's counter offer had been obtained last week (31.4 to 29.85); the Air Force had adjusted its position from 25.5 to 28.0 for Items 1 and 2. Further, that I did not feel that Items 3, 4, and 5 were a problem and that the difference of opinion on Items 1 and 2 was caused by the T-1 cost "model" assumed by LMSC and the Air Force in arriving at T-1 cost. Mr Johnson inquired as to my role in the negotiations. I explained that Mr Silberman was the negotiator and the single person to whom the Air Force looked for this function and that my role was to insure that he had appropriate guidance on the technical aspects of the Program. Both Mr Johnson and Gen Ritland agreed that further delay was unnecessary and unwarranted in view of the

copy features of the subject. Gen Ritland then directed me to contact Mr Silberman and establish Wednesday night (23 February) as the deadline for the consummation of negotiations.

e. Facilities. I reported that I had received information from Hq USAF which indicated that the Facility Package, necessary to give us the Building 152 posture for the Production Contract, had at last been obtained. I had received this information late Friday and that possibly Lockheed may not yet know it.

f. Planning on the Production Contract Drawings. I indicated that:

(1) We were now assured that suitable drawings, specifications, and procedures would be forthcoming from the -21 Contract to facilitate a fixed-price negotiation for the -68 Contract by 30 May 1962.

(2) We planned to use the Functional Test Mockup as a tool to rehearse a DD-250 Acceptance.

(3) Currently, Mr O'Green was exercising design control over the Agena D and that it was my intention to establish Air Force configuration control procedures for the Production Contract.

g. Logistics. I stated that I anticipated that we would have a spare part availability problem until the AD-5 time period. All indications were that the LMSC capabilities were being taxed to the utmost in meeting the AD-1 thru AD-5 flight article schedule alone.

1. Need for Component Improvement Program. I pointed out (and gained acceptance from both Mr Johnson and Gen Ritland) that the design of the Agena had of necessity progressed so rapidly that component engineering necessary to obtain .9 reliability had not been possible in the time period that had been allotted. In my judgment, it was necessary to identify the known weaknesses of the design and continue to work on them until the .9 reliability goal was attained.

3. Following the interview with me, Gen Ritland met with Mr O'Green and later with Mr Willis Hawkins to obtain their statement of the current status of the Program. Mr O'Green later indicated to me that Mr Johnson had taken him to task for not having produced "suitable production drawings" on the first go around and deplored the necessity for the CALAC effort to get the drawings in shape (\$330,000).

4. I was invited to join the group for lunch among Gen Ritland, Mr Johnson, Mr H. Brown, Mr W. Hawkins, Mr D. Gribbon, and Mr O'Green.



significant savings were projected. This chart and presentation provoked considerable discussion and "analysis." Messrs Jack Shoenhair, Mr Gribbon, and Mr Hawkins jointly attempted to answer questions and frequently complained that the comparison was unfair or that we were attempting to compare apples and oranges. The end result of this discussion was a recommendation by Mr Johnson that a series of four charts be developed which would more nearly compare apples with apples. Where this was not possible, the differences between the Agena B configuration and the Agena D configuration should be clearly documented and costed out. Lockheed requested additional time to complete this new look, and Gen Ritland concurred, in principle, and stated that it would be unwise to present the information just reviewed in the format presented and that he would much prefer to take a delay in time in order to get these important considerations in proper perspective.

5. Following this discussion, Mr Johnson continued to "turn over a few rocks" and brought into the open the magnitude of the changes between Lot I and Lot II. He concluded by strongly suggesting to Mr O'Green that there not be any structural difference in the first 12 flight articles and that the duplicating programs test the structural integrity of Lot I and Lot II be combined and the Structural Test Vehicle Program aligned solely to evaluate the Lot II configuration. Most of the detailed discussion pertained to the Guidance Module and effect of design of interchangeability and produceability. Next, attention was directed to a design review of the hydraulic power package. Only general information was available; however, the discussion made obvious that some of the limitations of the current system which conceivably contributed to the problem were not being corrected in the derated design. During the above discussion, Mr O'Green called in most of the senior members of his staff.

6. At approximately 1515 hours Mr Johnson asked that all present, except Gen Ritland and myself, leave in order that we might talk with Col Voyles. Col Voyles was requested to present the current status as he saw it. He indicated his concern that the current design of the tank was not suitable for production and voiced his specific objection to the O'Green/Kucheman approach on the -21 Contract. When queried in detail, he could not substantiate his feeling that "we would not end up in the position to go into a Production Contract." Col Voyles was then excused.

7. Mr Johnson then summarized the results of the inquiry, and Messrs Brown, Gribbon, and O'Green were invited to rejoin the group. Prior to beginning the summary, Mr Johnson discussed the tank changes which were underway with Mr O'Green, Mr Gribbon, and Mr Brown. Summarizing his feelings, he stated unequivocally that it was his recommendation that the proven tank assembly not be tinkered with in order to save 12½ pounds. After a modest amount of discussion on this point, Mr Brown and Mr Gribbon concurred in the position stated by Mr Johnson. Mr O'Green attempted once again to point out the motivations for his decision to make the change, and Mr Johnson concluded the discussion by the summary statement: "Fred, I am not telling you to change your design of the tank; I am recommending to you that you not change a proven design for the sake of 12½ pounds." The specific items which Mr Johnson pointed out in his summary were:

- a. Don't change the tank.
- b. Jointly settle the negotiation by Wednesday night.
- c. Keep all 12 flight items structurally alike. It is considered necessary to have some variance in black box configuration.
- d. Redo the contract cost presentation (Agena B Discoverer vs. Agena D Discoverer) and resubmit.
- e. Establish an adequate cost control system to permit the fixed-price Production Contract to proceed unincumbered.
- f. Keep the Project Managers (meaning SSD/LMSC using programs) in line. In other words, don't change Agena D concept at this time.
- g. Adequately fund the Agena D. It was pointed out that funding was due to run out on 18 March.

Gen Ritland acknowledged his concurrence in Mr Johnson's summary and recommendations. It is understood that Mr Johnson and Gen Ritland are to jointly submit a written report to Gen Schriever.

8. I drove Gen Ritland and Mr Johnson to the aircraft and, during this period, they indicated general satisfaction with the evidences of progress which they had seen; i.e., the hardware, morale, adherence to concept, etc., and despite their criticism of the specific items in the foregoing paragraphs, they felt that we were complying with the spirit and the intent of our charter.


HENRY A. KUCHEMAN, JR
Colonel, USAF
Director, Program 648B

~~CONFIDENTIAL~~

151

22 February 1962

General F. A. Schriever
Commander
Air Force Systems Command
Andrews Air Force Base
Washington 25, D. C.

Dear General Schriever:

On 26 February 1962, Maj. Gen. O. J. Ritland and Clarence L. Johnson visited the Lockheed Missiles and Space Company at Sunnyvale, California, as per your directive, to review the status of the Agena D program. We undertook to review, briefly, the following:

1. Were the basic 15 operating conditions set up for the Agena D program being complied with by LMSC and the Air Force.
2. What were the major problems currently being encountered on the program.
3. What were the areas of greatest technical risk.
4. What was the actual status of production of the vehicles.
5. What was the situation with regard to costs of the vehicle, with some reference to a comparison between the Agena D and the Agena B vehicles.

It was not possible, in the one day, to go deeply into these subjects, but it is felt that a very useful review of the program was obtained, with the following results.

BASIC OPERATING CONDITIONS

It was felt by Col. Kucheman, the A.F. project manager, Col. Jim Voyles, the A.F. Plant Representative, Mr. Fred O'Green, LMSC project manager, and Mr. Herschel Brown that both sides are adhering very well to the operating conditions set up for the Agena D in the meeting with yourself and Dr. Charyk at Sunnyvale in November 1961. Morale seems to be excellent and the relations between personnel appear to be very good.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

MAJOR PROBLEMS

In order of importance, major problems are:

1. Agreement on a contract, particularly, the program cost.
2. Determination of the optimum method of introducing special program peculiar and payload items into the standardized Agena at optimum cost and at the proper time.
3. Development of reliable hardware in the areas of the fuel tank, horizon scanner, hydraulic system, inverter, velocity meter and control gas regulator.
4. Because of the compressed time schedule, LMSC was proceeding with two different structural designs, requiring two sets of static tests for each group of six of the first twelve vehicles. This procedure would have resulted in a very late evaluation of the structural integrity of the production units.
5. A tendency on the part of various A.F. and NASA program managers, not including the Agena D manager, Col. Kucheman, to impose changes in structure and basic requirements that are not beneficial to the basic Agena D in its original concept. This is particularly true of the SAINT group.
6. Lack of a clear understanding by LMSC of the cost comparison between the Agena B and the Agena D, in a form which would allow improved cost control.

We would like to discuss the above problems and certain recommendations concerning them. Most of these were discussed in the presence of the WSPO and LMSC personnel, but only on the basis of the recommendations being tentative, until and if you direct that action be taken on them.

DISCUSSION

The Air Force and the Contractor have been unable to agree on the cost of the program for the first twelve vehicles. Intensive discussions have taken place over a period of a month. The Contractor complains that he is unable to agree on a step-by-step approach to various contractual matters because the whole negotiation is constantly stirred up with no important progress being made. We believe that the negotiating group could be helped considerably if Col. Kucheman and Mr. O'Green would

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Contractor also complains about the fact that some margin of cost must be available in order for him to include corrections, the need for which will show up during checkout and the flight of early vehicles. This is a normal and, in many cases, an expensive task. We did not have the opportunity to talk to the actual personnel engaged in the negotiations.

On the problem of introduction of payload and certain program peculiar elements into the production line, there seems to be no clearcut approach that is substantially better than others, at this time. We believe that this matter must be kept constantly under review, and that it will work out, as time goes on, if continuing study is given to each individual program and if the basic concept of the Agena D is not disturbed during early production. There may be means of making a transition in the production line to include various special items of equipment and thereby save overall time and cost in the long run, but it is not evident at this time how to do it on all programs, particularly when certain security aspects are considered.

In an effort to save twelve pounds of weight, LMSC had proposed reworking the Agena B fuel tank to change the gauge of the tank headers and remove fuel tank baffles. They had proposed that the tank headers be machined to within $\pm .0015$ ". We consider this to be extremely difficult in production, and a net gauge reduction of $.005$ " included at the same time is not worth the gamble involved.

The basic weight picture on the vehicle appears to be good, although it took a major redesign late in the program to obtain their current weight status. It appears that without reworking the Agena B tank, the vehicle will still be 40 to 50 pounds under the specification weight. In the interest of reliability and cost, we do not believe this change is warranted.

The horizon scanner and velocity meter both continue to be in technical difficulties. Col. Battle has instituted a backup program on the Barnes unit with ATL. There is still a question in our minds as to whether there is sufficient effort being put out on the basic problems of the horizon scanner.

The reliability of the Bell velocity meter is still questionable. There is some indication that this unit is not required, according to Mr. O'Green.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

The problems in use connected with this element should be resolved.

We had a considerable discussion regarding the Lear hydraulic package. Steps have been taken to improve the Agena B unit designated as the Mark II type by redesigning a considerable part of the unit, which is now designated as the Mark III type. Apparently three Discoverers have been lost due to hydraulic system failure. Mr. Johnson was not impressed by the redesign, in that the basic concept still involves an acceleration from zero to 7,000 rpm in 2 to 3 milliseconds, with attendant high loading on all parts of the hydraulic package. This unit will be late for qualification and is a strong potential element for causing a program delay and a vehicle failure.

Continual difficulty is experienced with solid state inverters. The most intensive inspection and quality control procedures, as well as a basic design review, are in order to attain reliable inverter operation.

The control gas valve was mentioned as a problem, which we know it to be, but time did not permit a discussion of this unit.

Discussion on the reasons for late structural tests on the production unit indicated that the first six vehicles had a longeron arrangement different from the last six. This involved duplicate static testing, at considerable cost, and resulted in a late static test for the actual production Agena D. A study of the drawings involved would indicate it to be in order to take immediate steps to make all vehicles alike structurally (and in every other way possible). It is felt that, by an all-out effort, the revised longerons can be installed in all vehicles and the static test article, to attain this end. It should result in a much earlier static test on the production vehicle and better accessibility and lighter weight on the first six articles. We emphasized to the Contractor the need for drastic control to insure that one type of vehicle be produced and that duplicate testing be avoided, from all points of view.

It is important that Col. Kucheman, the WSPO on the Agena D basic program, have sufficient authority to control the change requests from the using agency which adversely affect the standardization of the vehicle. In general, however, it can be stated that there seems to be an increasing acceptance, on the part of NASA and other groups, of the over-all concept of the program.

An effort was made to compare the costs of the Agena D vehicle to those of the Agena B at a comparable stage of development. But the information presented by the Contractor was extremely involved and unclear.

~~CONFIDENTIAL~~

It is always hard to compare the costs of one airframe to another, because of the numerous extraneous factors which always come into the picture, but it is possible to do a better job than we were shown on 26 February. To do this, it is necessary to take the vehicles at the same stage on the learning curve, to separate out differences in equipment and engine costs and to consider changes in labor and material costs due to inflation, when that is a factor. It seems apparent, after inspecting progress in production on the Agena D, that the over-all cost per bird must be less than that for the Agena B. The Contractor was asked to prepare data reflecting the above considerations for your early review.

19 APR 62
EJ-OJR
Review
of Actions
WST

RECOMMENDATIONS

1. The contract negotiating team of the Air Force and the Contractor should be directed to reach a settlement by 28 February 1962. Where technical agreement has been reached between the WSPO and the Contractor, these matters should be accepted by the negotiators without further lengthy discussions.

2. The fuel tank should not be redesigned, as currently proposed, to save 12 pounds of weight.

3. An intensive effort should be carried on to improve the operation and reliability of the horizon scanner.

4. The hydraulic system package is a most critical item and it is in order to carry on a parallel study for other means for obtaining reliable hydraulic power. It is probably necessary to make use of the currently planned units, but these will very likely be an everlasting source of trouble.

5. The electrical inverter and the gas control valve require the most diligent engineering studies and quality control to insure their reliability.

6. There should be only one basic structure developed for the Agena D, requiring one set of structural tests, which should be accelerated greatly.

7. The cost studies and, more importantly, the cost control on the Agena D should be evaluated and compared with the Agena B. The problems of re-engineering, multiple testing of inadvertent changes in vehicles, etc., must be controlled more closely by Contractor and the WSPO.

WST
S.F. X

IMP
BUT
OUT
WST

OK

OK

EVAN. G. E. COPY
20. 6. 4. 1. 65

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

Action →

8. Funding of the Agena D on a time basis has been rather marginal in two cases. It should not be required that the Contractor use his own funds to carry forward the program.

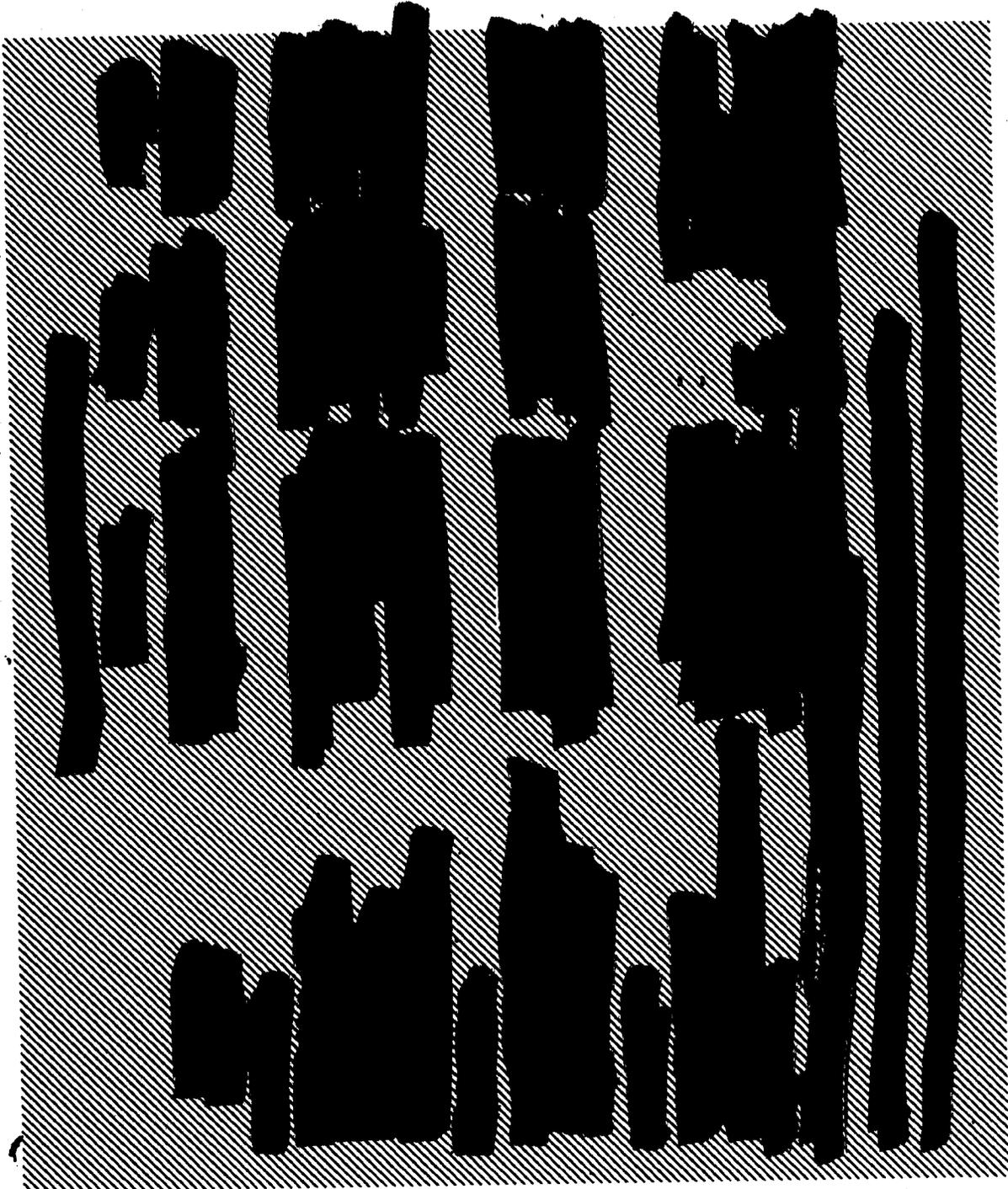
CONCLUSION

The status of the Agena D program is good. The program appears to be on schedule and production of three vehicles well along. An additional unit is in checkout and appears to be coming along well. There is every indication that schedules and costs can be met. There appears to be an excellent relationship between the Contractor and the Air Force, with both going all-out to make this a successful program.

O. J. Ritland
Maj. Gen. O. J. Ritland

Clarence L. Johnson
Clarence L. Johnson

~~CONFIDENTIAL~~



RECEIVED

ACT:7

-1 MAR 1962 16 62

INFO

R633
188
DONE 261
Feb

PK7
4142 V INGL 8516
RJVZBK 96
31927Z

AFSC ANDREWS AFB MD
TO RVZBK/SSD LOS ANGELES CALIF TO
INFO RVZHP/LOCKHEED ACFT CORP BURBANK CALIF TO

CLASS SCGN-28-2-46 FOR SSG, GENERAL RITLAND; INFO FOR MR. C. L. JOHNSON.

THIS IS TO CONFIRM GENERAL SCHRIEVER'S REQUEST THAT GENERAL RITLAND AND MR. JOHNSON REVIEW THE STATUS AND PROGRESS OF THE MAINTENANCE PROGRAM. PROGRESS WITH REGARD TO THE MANAGEMENT AND OPERATIONAL PLAN SHOULD BE INCLUDED. A SHORT SUMMARY OF THIS REVIEW SHOULD BE PREPARED IN WRITTEN FORM AND FORWARDED TO GENERAL SCHRIEVER WITH A COPY TO SCGN. PLEASE INFORM HQ AFSC, SCGN AS TO WHEN THE RESULTS OF THIS REVIEW WILL BE FORWARDED.

AM

?

BT
28/1934Z FEB RJEZFF

CLASSIFIED BY 198899

CONFIDENTIAL

153

2 June 62

SS1D

Agona D Weight

SS2X

SS2X

1. Reference SSZ letter subject, Agona D Weight, dated 12 Feb 62. Apparently the 500 to 600 pound overweight condition of the Agona D referenced in your paragraph 2 is a result of misinformation having been passed to Colonel Riepe by his LMSC contacts. Colonel Riepe advises me that at the present time, the total space craft/Agona D weight is 50 pounds overweight to perform his mission. This is not caused by the Agona having exceeded its target weight.

2. The committed weight for the basic Agona D of 1618 pounds has been achieved and bettered. This Program will continue to hold to the committed weight for purposes of evaluation for the Using Program requirements; however, the current weight status for AD-1 is approximately 30 pounds less than committed. These weight savings are the results of the following:

- a. Progressing from estimated, calculated and "spec" weights to "actual" weights of black boxes, wire harness, and structure. The current weight status reflects 50-60% actual weights.
- b. Redesign of the thrust cone and the booster adapter.
- c. Removals of diagonal braces and portions of the aft section bulkhead and removal of sheet and conical baffles from the oxidizer tank.

Additional weight saving is planned which, because of scheduling problems, will not be incorporated until AD-6. This saving will result in about an additional 15 pound saving, and will be accomplished by:

- a. Reducing the skin thickness of the Guidance Module (longerons will be added) and simplifying the component attachment.

ColKucheman/dc/2Mar62

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

CONFIDENTIAL

55X A-861

...the size, weight and complexity of the TM System.

...the Booster Adapter Extension which will be used
...missions.

Agens D weight allocated for the 481A Program is at least
140 pounds below that which in the early days of the project was
allocated to the Agens D. The current weight discrepancies are due
to weight increases in the payload area. I am attaching for your
information a copy of a chart which depicts the impact of our weight
reduction program which has been in effect for the past six weeks.
The target weight shown on those two graphs is the target weight
desired by the Agens D Discoverer mission, our design objective.
It should be borne in mind that the target weight is the weight (1326
pounds dry weight on orbit) which we are committed to furnish.
Although our current weight status would indicate that we are com-
fortably below this target weight by some 50 to 60 pounds, it must
be recognized that any structural adjustments which would accrue
from the tests currently being run on structures or the conversion
of estimated weights to actual weights will probably be additive.

Since you can't put ten pounds of potatoes in a five pound bag,
I hope we are designing to the right criteria. Thus far we have not
received a definitive statement from Colonel Riops.

HENRY E. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agens

1 Atch
Agens D Easic Weight
Status Graph (2 pgs)(U)

CONFIDENTIAL

CONFIDENTIAL ~~SECRET~~

154

SSXD

2 MAR 1962

Agens D Delivery Schedule

SSZ

1. Reference SSZ letter subject, Agens D Firm Requirements, dated 16 February 1962.
2. The Agens D office concurs with the allocation of the first thirteen Agens D's as revised by the referenced letter.
3. The delivery schedule for the first twelve Agens D's is a contractual requirement of the basic Agens contract. As stated in the basic correspondence, the need dates are supported by the contract delivery schedule, except for the first Agens D which is four days late.
4. The Agens D office has a follow-on letter contract to support the requirements listed on Date Table #19, Supplement A, dated 2 Feb 62. This letter contract provides for long lead procurement to build up production to four per month in December 1962 as reflected in the referenced date table. There is presently an contractual delivery schedule associated with the follow-on contract. This planned production rate will support Date Table #19 Requirements but will deliver Agens D's up to four months in advance of the need date in the fourth quarter of CY-63.
5. Upon receipt of the additional chart verifying both firm and planning Agens D requirements, this office will take necessary action for a contractual delivery schedule to meet SSZ requirements.

SIGNED

HENRY D. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agens

1 Atch
Chart, Agens D Reqmts,
(2) 2 pgs (multilith
master)

When indexes are withdrawn the classification of this document will be down graded to ~~SECRET~~ in accordance with AIR 255-1

CONFIDENTIAL

SSXD/Ma/Hogorle/dc/28Feb62

DOWNGRADED AT 12-YEAR INTERVALS, NOT AUTOMATICALLY DECLASSIFIED. DOD DIR 5200.10

~~SECRET~~

SSZKR-159

MG

153

noted

5 MAR 1962

AGENCY Memorandum - Agency D Optional Equipment
Procurement Procedures

SAUSP

Reference is made to Agency D Optional Equipment Procurement Policy, dated 25 January 1962.

To implement this policy, the following detailed procedures will be utilized:

1. The attachment to referenced memorandum is entitled, "Attachment I hereto is a current listing of optional equipment unit cost and procurement leadtime. This list will be revised by GSX whenever changes occur."

2. Agency D optional equipment will be procured in lots as dictated by fiscal year requirements. At the beginning of each fiscal year, an order will be placed for all the optional equipment items because of the reorder leadtime, must be procured during the fiscal year. The lot release date will be dictated by the leadtime of the first user. In accordance with paragraph 1a of referenced memorandum, the total fiscal year requirements will be consolidated by GSX. A program funds to support the total lot procurement must be provided to GSX prior to the lot release date. GSX will provide each program office with a time table of funds required to support the approved quantitative requirements.

3. GSX will initiate Purchase Requests to fund requirements utilizing existing PX procedures and obtain coordination from each program office concerned. Program funds should be cited and in the remarks section, a statement included indicating that this equipment will be procured under the AF 04(693)-65 Agency D contract for the FY-63 and prior year procurements.

4. GSX will provide for contractual coverage and monitor factors to insure delivery is timely and in accordance with established requirements.

55X2

... of funds received by program will be provided upon
... Quantitative requirements from SIZER.

SIGNED

WALTER J. WILFINGER, JR.
...
...
...

1. Attach
Optional Equity Listing

REF ID: 55-102
MAR 17 47
REF. 556

17 110
156

0716302
AFSC ANDREWS AFB MD
RJVZBK/SSD LOSA CALIF
INFO RJVZHP/LOCKHEED AIRCRAFT CORP BURBAND CALIF

SCGN-7-3-12 FOR SSG, GENERAL RITLAND; INFO FOR
C. L. JOHNSON.
SUBJECT: AGENA "D" PROGRAM. REFERENCE REPORT FROM GENERAL
RITLAND AND MR. C. L. JOHNSON DATED 27 FEBRUARY 1962 AND
DISCUSSION BETWEEN GENERAL RITLAND AND COLONEL NUDENBERG
(AGENA) AND 5 MARCH. REQUEST RECOMMENDATIONS CONTAINED IN
REFERENCED REPORT BE IMPLEMENTED WITHOUT DELAY. FURTHER
REQUEST GENERAL RITLAND AND MR. JOHNSON CONDUCT AN
ADDITIONAL REVIEW OF THE AGENA "D" PROGRAM ABOUT 1 APRIL
AND PROVIDE A SHORT WRITTEN REPORT ON PROGRAM STATUS TO
GENERAL SCHRIEVER.

OPM
Col Kuceman
EX-100
7 MAR 1962
TO IMPL

BT
07/1637Z MAR RJE

16381

157

LOCKHEED MARTIN & STILES COMPANY
Sunnyvale, California

In Reply Refer to:
LMSC/AOT5723
Dept. 60-11

8 March 1962

Subject: Comparison of Costs - Agema B vs Agema D

To: AFSSD(SSZ)
Attn: Col. E. L. Evans
Air Force Unit Post Office
Los Angeles 45, California

Thru: AF Plant Representative
Sunnyvale, California

Reference: (A) AFPR (MEMO) Memo to HEMM/Elmo E. Eiden, w/copies
to L. A. Carter, etal, dtd 2-16-62, subject: Agema B
vs. Agema D Cost Data (No LMSC Reference)

- Enclosures:**
- (a) Labor Cost Comparison Agema B vs Agema D - Chart
 - (b) Total Vehicle Unit Cost Comparison - Chart
 - (c) Vehicle Unit Cost Comparison "B" vs "D" - Chart
for Discoverer
 - (d) Agema B vs Agema D Cost Comparison - Table
by Program
 - (e) Agema B vs Agema D Cost Comparison - Table
by Element
 - (f) Discoverer Subcontract and Material Cost - Table
Comparison
 - (g) Summary of Cost Savings - Table

1. The Contractor has completed the comparison of Agema B vs Agema D costs for the Discoverer, Program 201 and MIDAS, in response to an oral request from AFSSD and per Reference (A). This study is concerned solely with vehicle costs and, by mutual agreement, one time development costs are excluded from both Agema D and the using programs. With actual experience on 41 Agema B's, cost projections are considered very reliable. However, since both the new Agema D and the programs using Agema D are in the early planning, design, and prototype phases, cost projections are much more difficult to predict.

2. Each of the program phases in at different periods in the

Subject: Comparison of Certain
Agona B vs Agona D

INR, AOT/323
Page 2.

Re: AFMSD - 202
Attn: Col. E. L. Swartz

life of that program, as well as at different points on the Agona D development, thereby producing a combination of variables requiring careful analysis. To insure a valid comparison, INR has conducted a thorough review of design, material and subcontract hardware and testing for both "B" and "D" on the basis of the following premises:

(A) Vehicle Costs

Vehicle costs of the Agona B Discoverer, Midas and IOL Programs are compared with equivalent cost of the Agona D Discoverer, Midas and IOL Programs. These costs include the functions listed below:

<u>Agona B</u>	<u>Agona D</u>
Program Vehicle	D Vehicle D Test D INR/20
Program Test	Program Optionals
Program DD 250	Program Peculiarities
Support	Program Test
<u>Total Vehicle Cost</u>	Program DD 250
	Support
	<u>Total Vehicle Cost</u>

(B) Schedule

Date Table 19 determines quantities and manufacturing sequence.

(C) Basic Agona D - Labor

Learning Curve 1 thru 5 - 90%
6 thru 73 - 85%

Note: Labor curves are shown on Enclosure (a)

(D) Optionals - Labor

Learning Curve All - 95%

Factors: Smaller quantity than basic "B"s;
some vehicles unassigned - optionals unknown.

(E) Peculiarities - Labor

Learning Curve 1 thru 73 - 95%

Factors: Fewer quantities - greater variables
between peculiarities and greater and different
spacing between reorders.

Subject: Comparison of Costs
Agema 2 vs Agema D

DWG/107923
Page 3.

DOI
AT&D - BRZ
Attn: Col. E. L. News

(Y) Systems Test - Table

Learning Curve 1 thru 73 - 89% complete

Factors: 89% on vehicle oriented effort (variable)
90% to 100% on support effort (fixed)

(O) Material "Y"

Learning Curve 1 thru 13 - 97%
14 thru 73 - 97%

Factors: Shop function after vehicle 13 reduced costs by about 10% of average material cost as development of new sources and use of existing CRT equipment is completed. One time procurement of 60 units provides this savings.

Notes:

Agema D includes new and improved equipment, such as benches in lieu of benches, advanced design of MP and also a velocity motor, etc. For this study it is assumed that similar improvements would be included in any added Agema D vehicles and material costs are included for both "Y" and "Z". Mileage (Z) shows the comparison of current "Y" to the new "Y" costs for reference purposes only.

(X) Material - Benchers

Learning Curve 1 - 73 - 97%

Factors: Will continue short procurement, shop function savings (Item 6) are not available.

(Z) Modified Agema 2

Learning Curve - Shop Program - 90%

Factors: Continues present experience and re-order method on a limited number basis. No standard "Y" exists. Present re-orders on variable spans.

Subject:

Comparison of Costs
Agnes B to Agnes D

D880/1071993
Page 4.

To:

LYNED - BEZ
Atlas Col. E. L. Evans

(J) Support Costs "Y" and Programs - Labor

Evaluation with each Program Office based on present effort and current proposals. Effort covers remaining engineering type activity (not original design) necessary to support the flight configuration of each vehicle and to provide related flight data reduction.

(K) Support Costs Agnes "Y" - Labor

No support costs are included for the first 13 "Y"s since this effort is covered under the development effort. \$90,000 is included per vehicle, starting with #14.

(L) Costs Excluded

All costs for AGN, legislation, spares, one time development tooling and engineering are excluded from this study.

3. To compare the cost of using either an Agnes B or D it is first necessary to analyze the phase-in period established by Data Table 19. Enclosures (a) and (b) make this analysis, showing the unusual planning problems and learning curve relationships summarized below:

Quantity	Using Programs	Learning Curve Position Spans	
		Programs	Agnes D
13	Discoverer	41 - 53	1 - 24
13	201's	10 - 22	16 - 73
11	Midas	1 - 11	18 - 99
37	Total		
24	Other Programs		
12	Unassigned		
73	TOTAL		

Further comparison is done on a Program Basis, as follows:

4. "Y" Discoverer costs (triangle) compare with the "Y" Discoverer curve showing a break-even point at the 14th unit. The relative position of the learning curves indicates that "Y" Discoverer absorbs most of the "Y" early period high costs.

A more detailed analysis of this period is shown on Enclosure (c) comparing the individual vehicle costs for the 13 Discoverers, plus an assumed follow-on of 13 more, revealing a 10% cost savings at the 26th unit.

Subject: Comparison of Costs
Agma 2 vs Agma D

COM/ACT/SAC
Page 3.

Re: AWARD - BRZ
Adm Col. L. L. Evans

b. (cont'd)

1. Discovery

2. Discovery

Date No.	Date Cost
2-11	[REDACTED]
2-23	[REDACTED]
2-24	[REDACTED]
2-26	[REDACTED]

Date No.	Date Cost
2-1	[REDACTED]
2-13	[REDACTED]
2-14	[REDACTED]
2-25	[REDACTED]

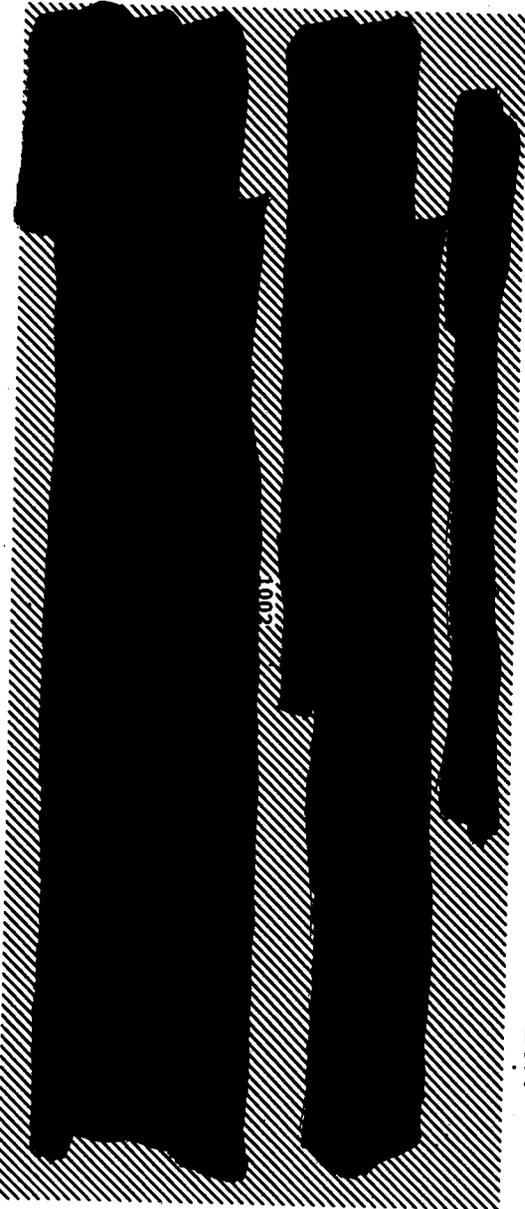
The step reduction at 2-14 is the result of two cost advantages. First, Factory Automobile Checkout Equipment (FACE) is expected to reduce "p" booking by \$70,000 per vehicle average. In addition, the single procure-ment of 60 units of material is estimated to save an additional \$70,000 per vehicle (Phase 6).

An earlier break-even point at the 12th unit is indicated if Discovery options and penalties are included and tested by Agma D.

More Discovery total cost comparison information is shown on Enclosures (a) thru (g).

5. Program 211. This phasing period extends over 58 Agma D's and reduces learning curve benefits from 2-16 to 2-73j none of the early high cost period Agma D vehicles are used by Program 211. For these reasons there is an immediate pay-off by using Agma D, beginning with the first vehicle and totalling \$2.95 million for the 13 units.

6. ADDS. With phasing also benefits from the use of Inter Agma D's spread over 42 vehicles, from 2-18 to 2-79. Here, again, the pay-off is immediate from the first unit and totals \$8.85 million for 11 units.



2000/10/13/923
Page 6.

Subject: Comparison of Costs
Agens D vs Agens D

To: AFRID - SIZ
Attn: Col. E. L. Davis

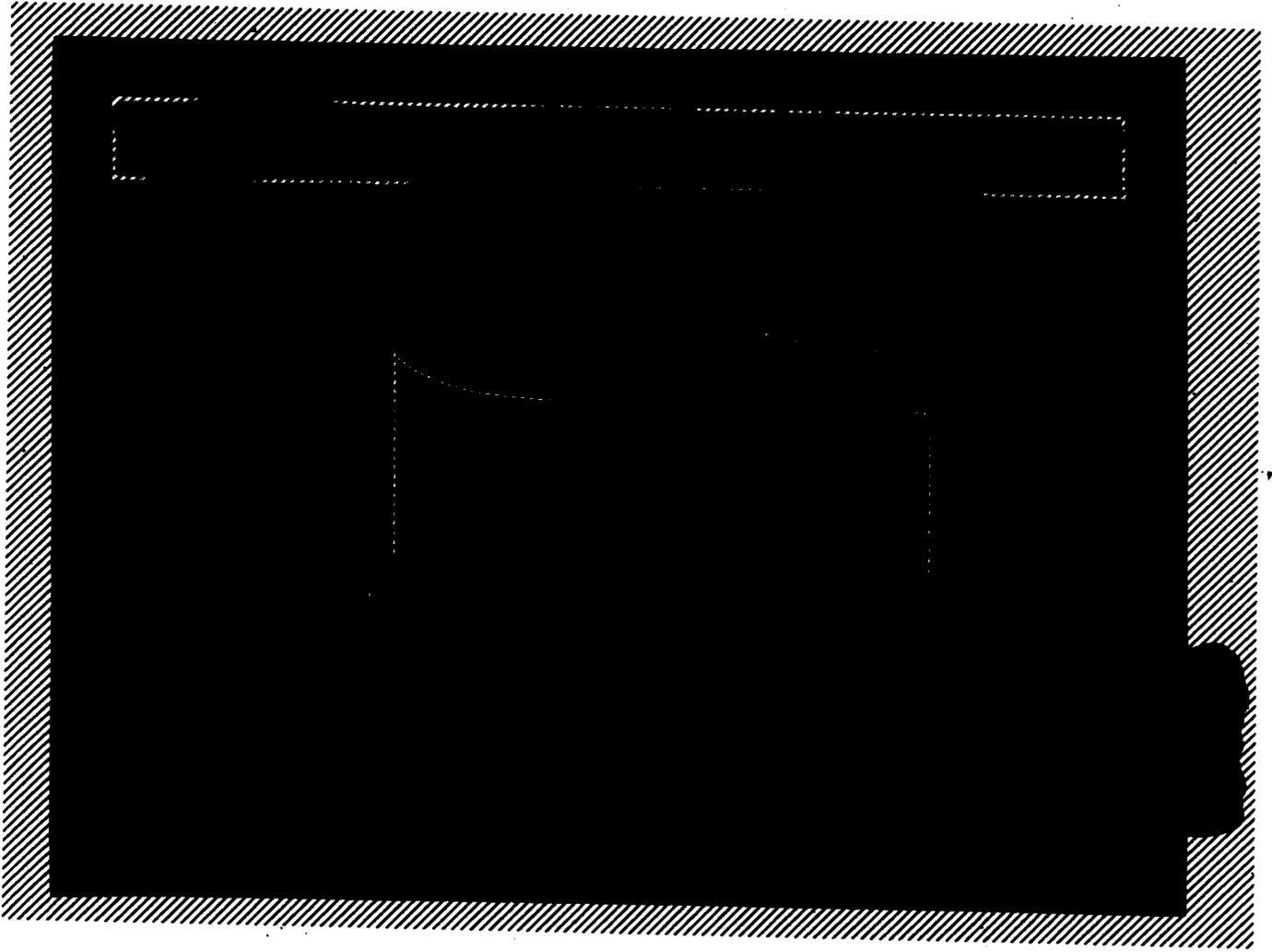
8. Contractor's preliminary cost estimates include savings results from introduction of Agens D beginning with the 14th Maintenance Vehicle. Available savings are outlined on the following and HIMS Program. It is obvious that these estimates are not based on actual experience of vehicle testing activity. Such costs will be dependent on final resolution of test plans.

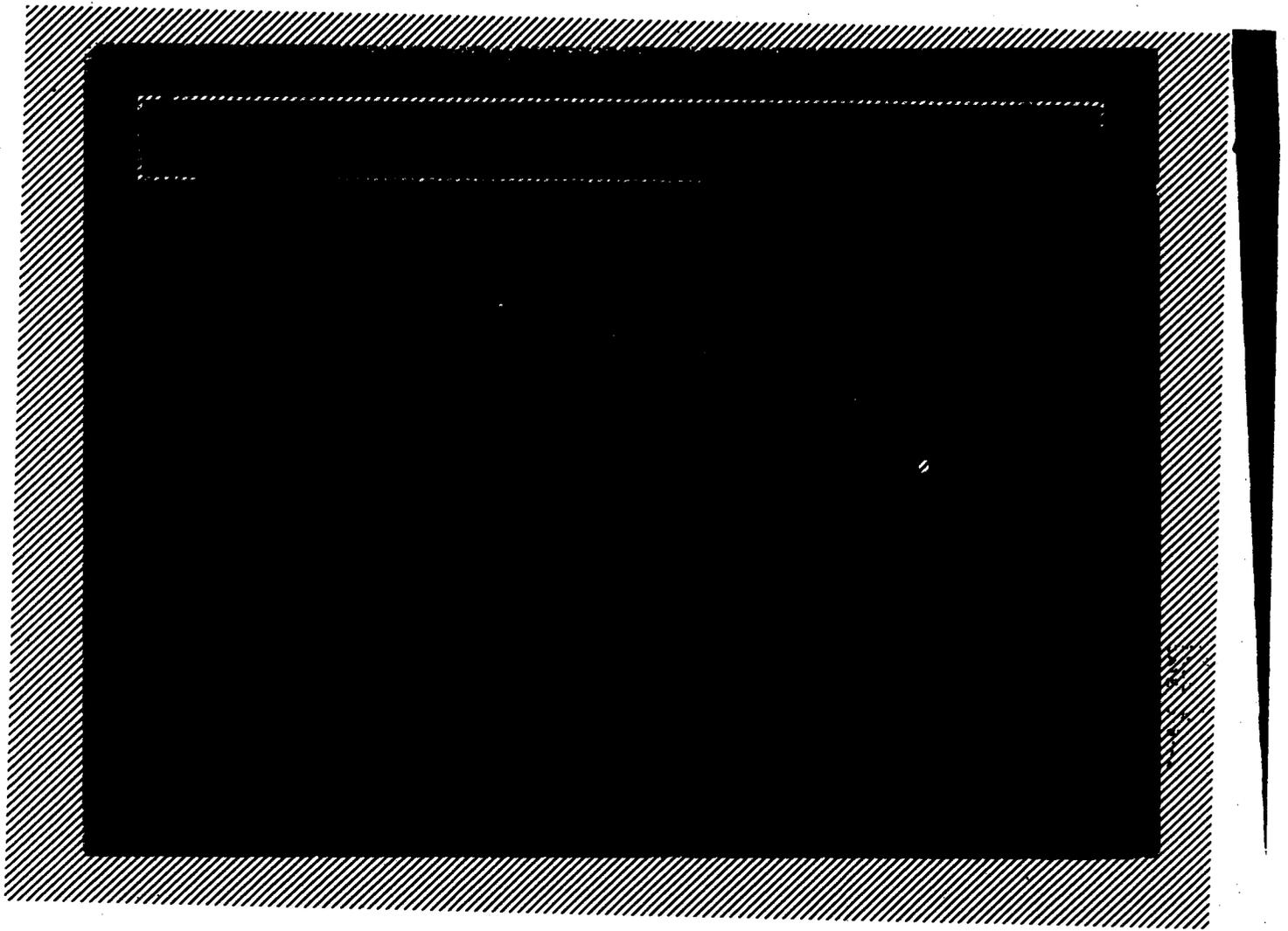
STATE SUPPLY SYSTEM

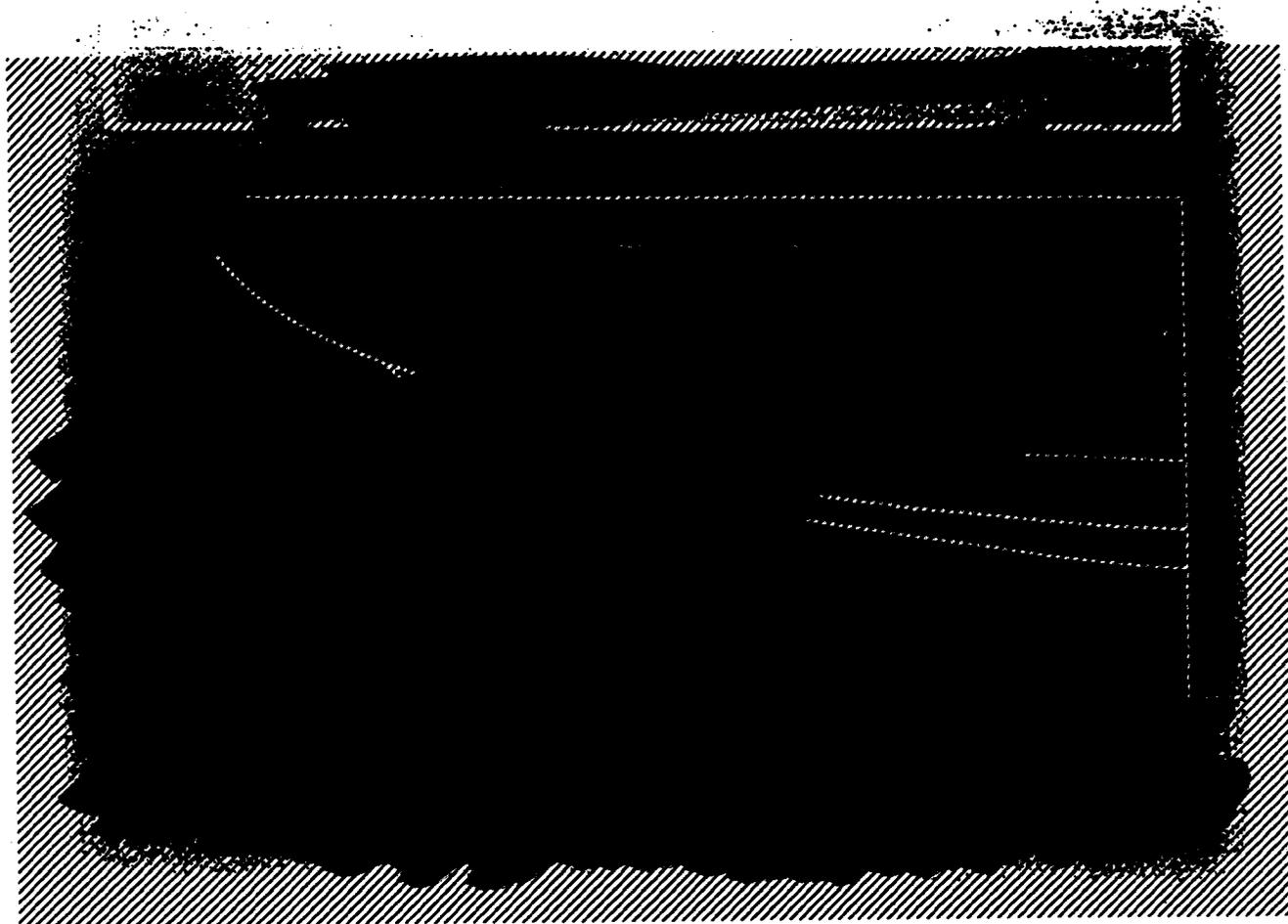

E. L. Swartz
Vice President and General Manager

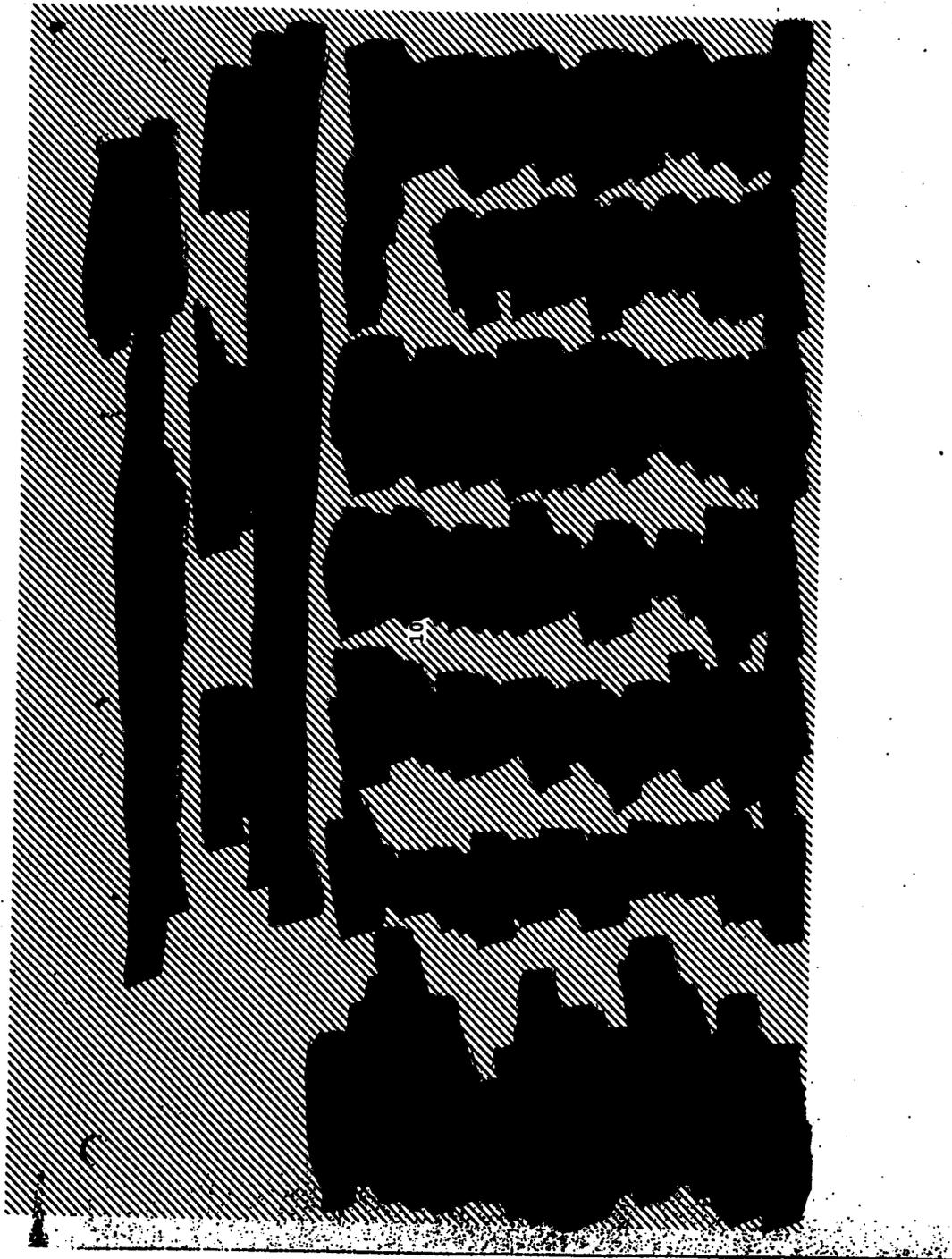
REMARKS:

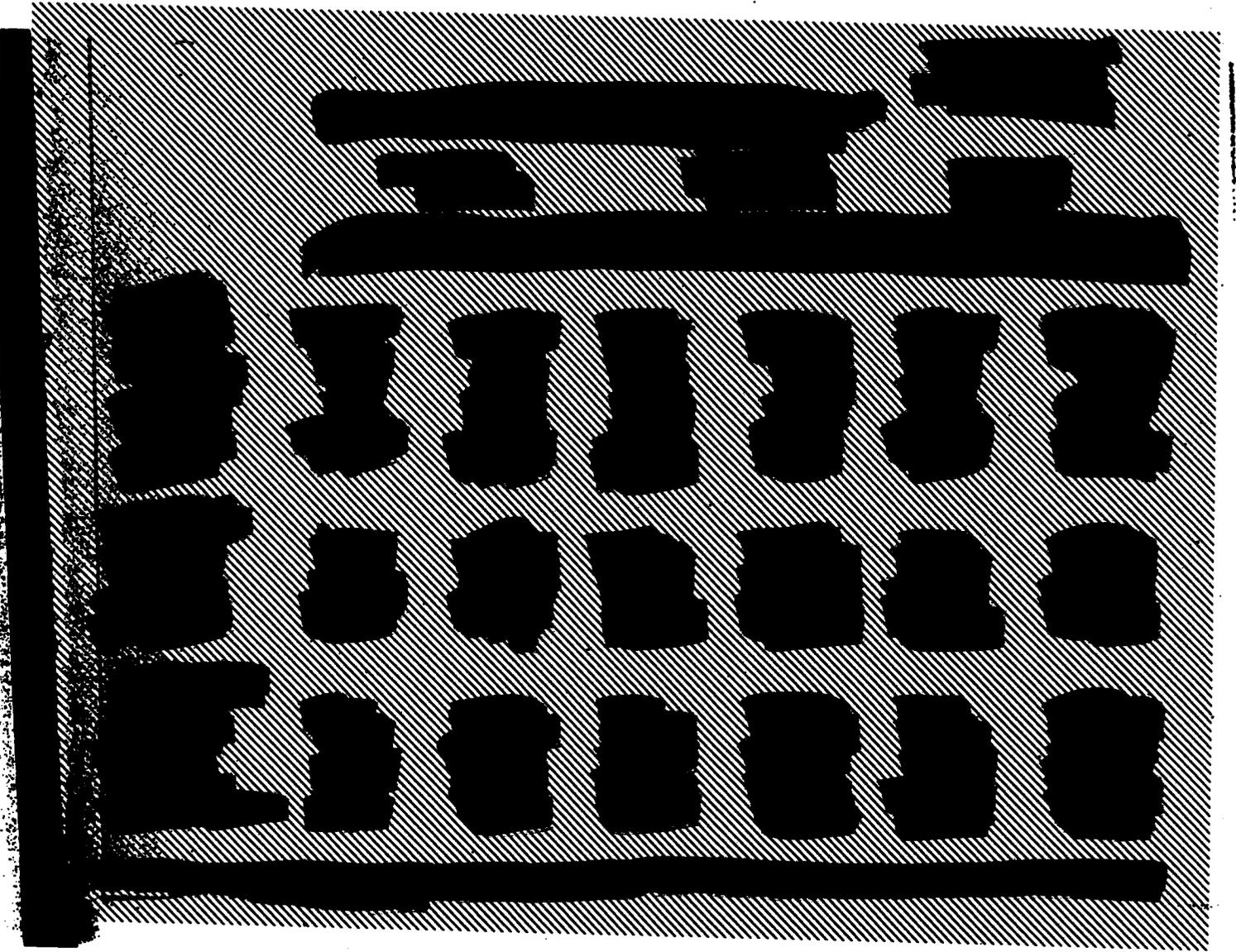
001 AP Plant Representative
Saneyvale, Calif.

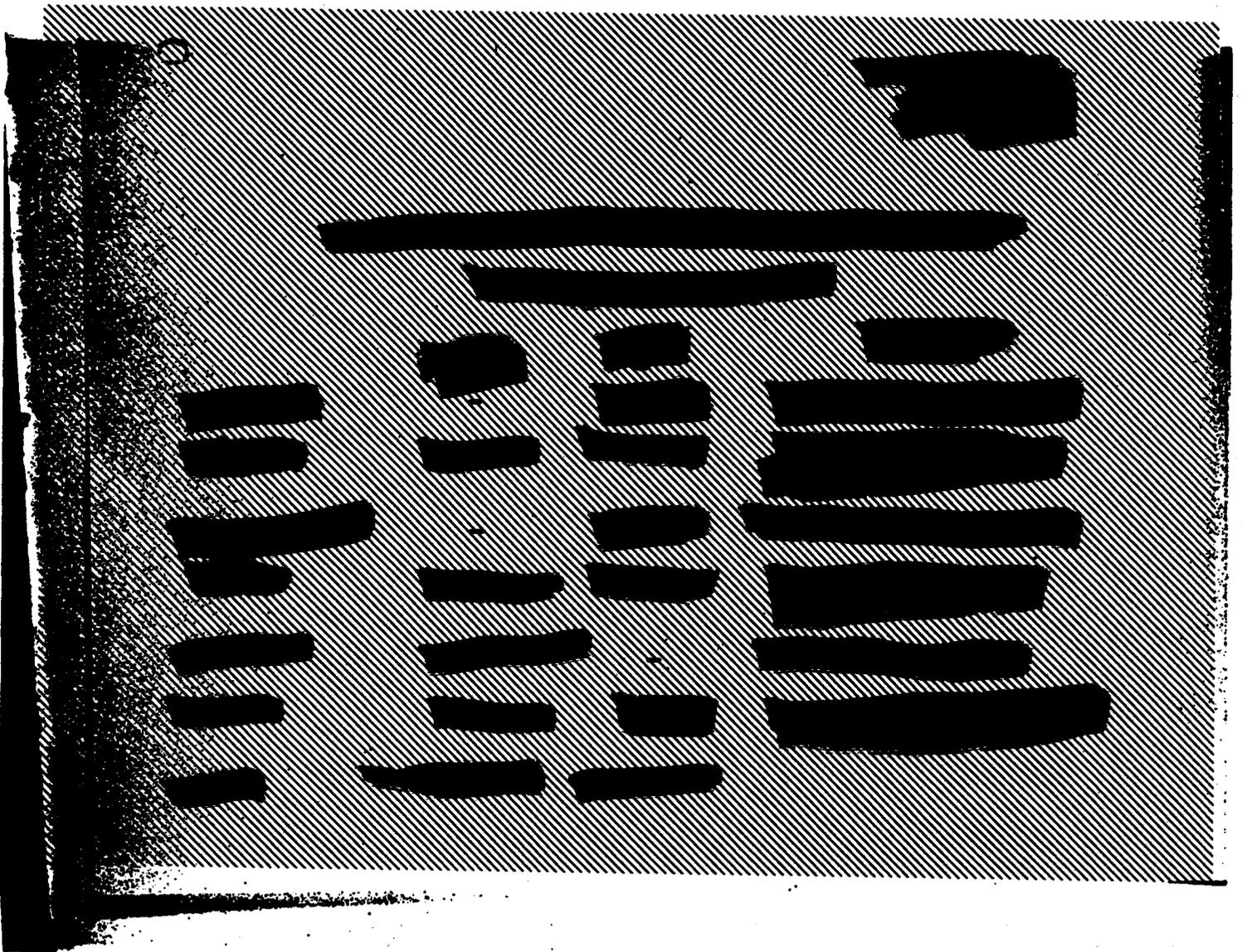


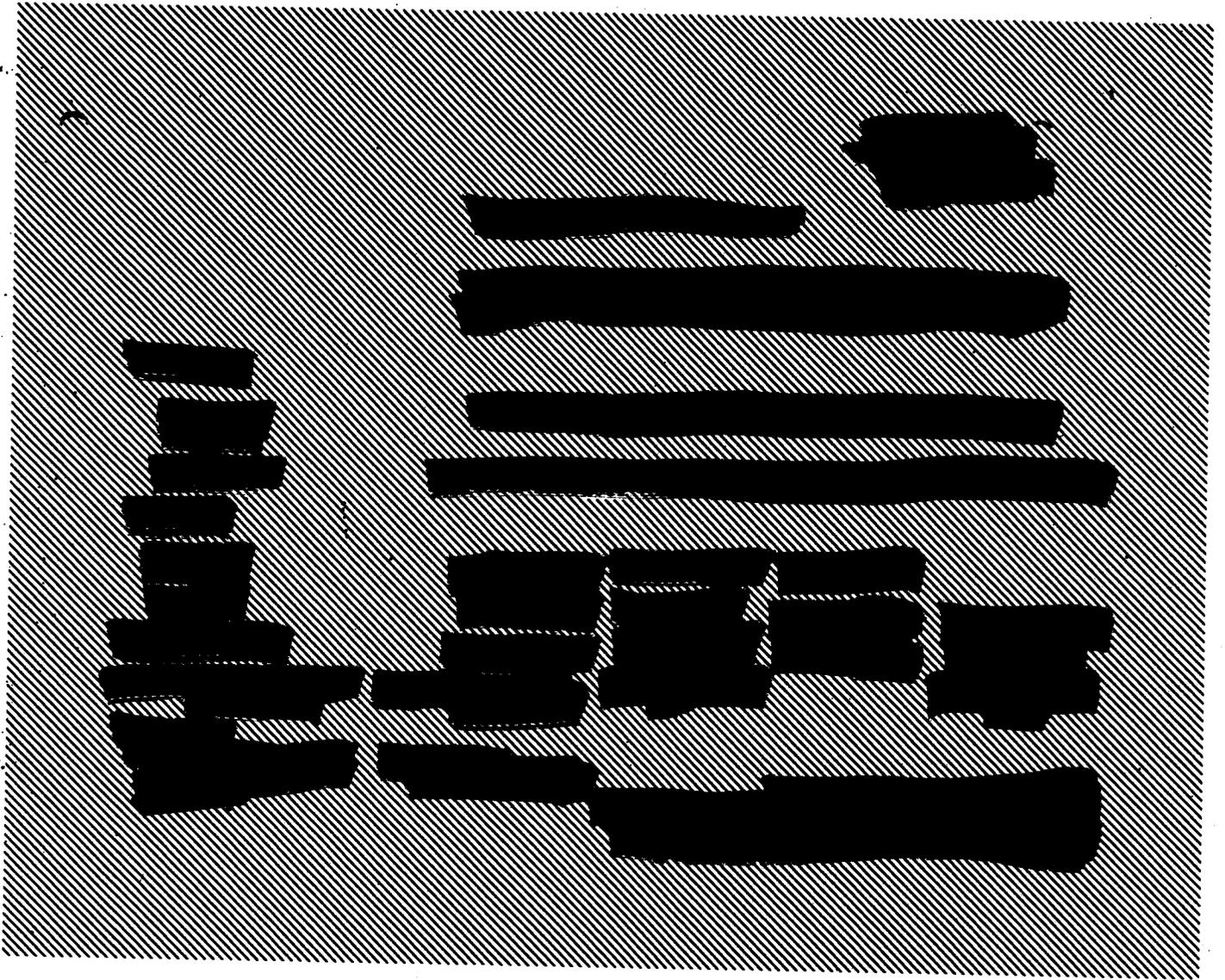












DISTRIBUTION LIST

DMC/JT9923
Dept. 50-01
8 March 1962

Subject: COMPARISON OF CCSTIS AGENA B VS AGENA D

Col. J. H. Voyles (Original + 5)

L. E. Root	R. A. Anderson
D. J. Gibbon	J. O. Bradley
W. M. Hawkins	E. P. Andrews/D. D. Pollock
F. W. O'Green	E. E. Crowther
L. A. Carter	J. J. Koopov
J. W. Plummer	

DCS (8) 6D-10 (2)

MEMO: Capt G. G. ... 03 9-4001-1000

Study of Thor Agena B Configurations

12 March 1962

SSVX (Mr. J. Albert)

1. Ref. ltr MSEC (M-B & M-A), dated 20 Feb 62, Subj: Study of Thor Agena-B Configurations to meet the Operational Meteorological Satellite Requirements.
2. Although the subject letter contains only a request for an estimate of cost, an intent for I&MD to later subcontract to D/C is implied.
3. A study of the type described could result in duplication of effort unless close coordination with SSVX was maintained. For example, the Statement of Work for the study includes several areas of work: either completed or in process:
 - a. Launch complex modifications for Pod 1, except entry modifications, have been completely designed to the point of release for both the DSV-2C (Thor-A, one B with solid boost) and Thor-A (Thor Agena B with solid boost and additional propellants in the first stage).
 - b. A detailed engineering study of the Thor-Jr (DSV-2C), or Thor + 3 is presently in progress.
 - c. In addition, Douglas has submitted a proposal for a Thor-Jr IREI, which is essentially the same configuration as the booster for the third vehicle described in the work statement.
4. Since the requested cost estimate is of interest to other S&D programs, request that SSVX receive a copy of the D/C RCI estimate submitted to I&MD.
5. The Directorate for SLV II has the capability to most efficiently obtain the subject study from D/C for I&MD and M/SA. Since this study would be of direct interest to S&D, considerable knowledge and benefit would result from the study being managed, including contracting and technical direction, by SSVX. It is my desire and position that SSVX should have the management responsibility for the D/C part of the study when funding is provided for its implementation.

ROBERT L. BEERS
LtColonel, USAF
Director, Standard
Launch Vehicle II

X-1
R-1
X-1
R-1

159

SSVIX/ Capt McCalley/CG 9-4661-163

DM-21/Agona D Pad and AGE Modification

13 March 1962

SSVIX

1. Request contractual action be taken with DAC to modify Pads 1, 4 and 5 at VAFB and associated AGE to launch DM-21/Agona D vehicles.
2. The work required will be as follows:
 - a. Provide additional cables on Pads 4 and 5 from the Pads to the blockhouse.
 - b. Change the plugs on the General Electric cables on Pad 1 to be interchangeable with the cables on Pads 4 and 5.
 - c. Wire the lock-out relays from Pads 1, 4, and 5 to their respective blockhouses and install switches and indicator lamps on the consoles.
 - d. Modify interface simulators at Santa Monica and Vandenberg Air Force Base.
 - e. Modify checkout gear at Santa Monica and Vandenberg Air Force Base.
3. The work outlined in Items a and b above is also required for Pad 2; however, DAC will accomplish this work under the -77 contract as it is now written.
4. The work on Pad 1 and associated AGE should be completed by June 1962. The work on Pads 4 and 5 and associated AGE should be completed in time to meet the Discoverer DM-21/Agona D launch schedule.

JOHN H. JOHNSON
Capt, USAF
Chief, Engineering Support Branch

CC: SSVIX (Capt Young)

X: Bro 1-1

~~CONFIDENTIAL~~

160

Contract for 39 Agna
vehicles

MAR 22 1962

SSD

Contract AF 04(695)-63, Request for Authority to Use
Form C Price Re-determination

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

SSK

1. Reference is made to AFPI 3-403, 3(1)(c)(4) and discussion with
Mr. Hines, SSKP, 22 March 1962.

2. It is proposed to use a Form C price re-determination provision
in the subject contract as defined in ASPR 3-403(b)(3), and ASPR
7-109.4, referred to as Type C. Set forth below are the signifi-
cant details of this procurement.

a. The subject contract is a fixed price letter contract issued
to LMSC 10 Dec 61.

b. Requirements of ASPR and AFPI with regard to a Type C
re-determinable contract have been considered.

(1) It has been determined through preliminary negotiation
that this type of re-determinable contract fulfills more completely
than any other type of contract the requirements established by the
conditions surrounding the procurement.

(2) Sufficient pricing information will be made available
from data derived from Contract AF 04(695)-21 to negotiate a
prospective target price.

(3) A firm fixed price can be established at a point sub-
stantially in advance of contract completion.

(4) Assurance has been received that the contractor's
accounting system is adequate for contract price re-determination
purposes.

c. The subject contract is for 39 Agna D vehicles to be
produced in accordance with specifications and drawings prepared
under R&D Contract AF 04(695)-21. This procurement data will be
available prior to preparation of contract proposal. The contract will
also provide for spare parts and logistic support.

~~CONFIDENTIAL~~

SSN-5

~~CONFIDENTIAL~~

d. Although preliminary discussions with the contractor have indicated the necessity for a re-determinable type of contract, no proposal has been submitted to date and target and ceiling prices have not been established.

e. The subject letter contract was issued on a sole source basis and no competitive proposals are obtainable.

f. The delivery schedule for supplies to be furnished under the contract are as follows:

<u>1962</u>				<u>1963</u>							
<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	
2	4	3	4	4	4	4	4	4	4	2	

g. It is impracticable to issue a straight fixed price contract since the only cost history available is that derived from Contract AF 04(695)-21 which includes a large percentage of non-recurring start-up costs in the form of design, tooling, and test equipment, plus many changes involved in the development processes. It would not be feasible to make an accurate adjustment of these non-recurring costs to insure protection of the interests of the government in negotiating a straight fixed price contract. Consideration was given to other types of contract such as CPLF and fixed price with successive targets, etc., and none of these type appear as suitable as the Type C re-determination.

3. It is further proposed to discuss the possibility of an incentive provision with the contractor on a FPIF basis, subsequent to the price re-determination. Since the situation with regard to incentives in regard to this contract is not sufficiently clear at this time, no authority for incentives is now requested. If the circumstances warrant, additional authority may be requested for use of an incentive type contract.

4. In view of the data presented above, authority is requested to commence procurement action upon the basis of a fixed price contract with Form C re-determination.

SIGNED

EUGENE S. SILBERMAN
Contracting Officer
Agency D

~~CONFIDENTIAL~~

161

MAR 22 1952

SECRET

Contract AF 04(695)-31 - Incentive Fee Negotiations

Richard Missiles & Space Company
Attn: Mr. Willis M. Hawkins
Post Office Box 504
San Ysidro, California

1. I have received your letter of 19 March concerning the negotiations toward definitization of our contract AF 04(695)-21 for the Agena D program, and am pleased to have this opportunity to discuss it with you.

2. It may be helpful for me to review the Air Force position concerning the fee for the subject contract. No sweeping statement was intended or should be made "that CPIT contracts merit higher or lower fee than CPIT contracts". Every contract must be considered in relation to the program it pertains to, and the individual circumstances which influence fee.



- T_t - fee total
- T_t - target
- F - fee
- C - cost
- S - schedule
- P - performance

The Contracting Officer indicated to your representatives that there was flexibility in the proposed formula which could be negotiated.

4. It is not my intention here to theorize on negotiation. Nevertheless, it is necessary to point out that the negotiation of a contract requires mutually, and that both parties must sit down at the table and enter into discussions whose sole objective is to reach agreement. Obviously, no agreement can be reached if one party keeps saying "No" to every offer presented. It is suggested that your negotiators offer a fee formula which they consider reasonable and that discussions be held on the basis of the contractor's position versus the Air Force position. If this approach is followed in proper spirit by both parties, there is no question in my mind that a speedy agreement can be reached.

5. I understand that the contractor desires an incentive type contract. This desire is equally reflected by the Air Force. You will, therefore, understand our rising concern in negotiation delays with relation to the degree of completion of the program. It is clear that there is a point beyond which incentive fees could not influence the outcome of the program, and when that point is reached it would be purposeless to apply such incentives.

6. The Air Force reiterates your statement that we are willing and anxious to resume negotiations at the earliest possible moment. I suggest that the Air Force negotiation team resume negotiations on an incentive fee as soon as a suitable counter proposal can be submitted by LMSC.

SIGNED

EUGENE S. SILBERMAN
Contracting Officer
Agona D

Copy to:
AFPRO LMSC
Sunnyvale

I consider this a most significant forward step. The improvements will provide refinement in the application of costs to individual Government contracts and remove the inequities in the system which heretofore was not sufficiently detailed to segregate costs to the detail necessary on

from the Air Force Auditor which is expected in the next few days. The only remaining approval on the system is for re-determination type contracts and this will be done as soon as we receive a recommendatory letter capability requests presented to us by the buying offices in the Air Force. For straight fixed price contracts, we would affirmatively reply to facilitate informed Lockheed that although no formal approval is needed on the system extended approval of the system for incentive type contracts and has also

in Chief of Contracts, acting for all Departments of Defense, has not following each step to insure that the contractor adheres to the schedule. My staff has prepared charts of these time phased actions and are closely 1962, a time phased milestone plan to accomplish the proposed changes. by a comprehensive written plan. In addition, IMSC presented on 8 March Lockheed to improve the system. This verbal presentation was supported representatives of the Departments of Defense on changes proposed by On 17 March 1962 a formal presentation was made to me and other representatives of the system, they finally agreed to make the changes which we have all felt were necessary to improve the system. After considerable pressure was exerted on Lockheed, including with-
drewal of approval of the system, they finally agreed to make the

improvements to the Lockheed Accounting System. This has been the subject of prior communications to you and is a subject with which I know you are most concerned.

I am writing to inform you of recent developments in attaining
Major General O. J. Ritzland
Commander, Space Systems Division
AF Life Post Office
Los Angeles 45, California
Dear General Ritzland

Program Made in Improvements to IMSC Accounting System

MAR 23 1962

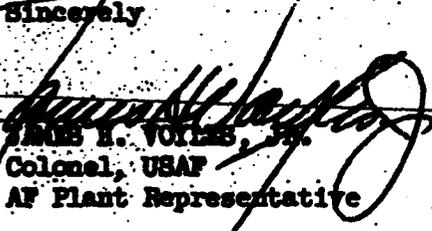
OFFICE OF THE AIR FORCE PLANT REPRESENTATIVE
WESTERN CONTRACT MANAGERING BOARD
UNITED STATES AIR FORCE
LOCKHEED HEWLETT AND SPACE COMPANY
MOUNTAIN VIEW, CALIFORNIA

162

the large volume of contracts now under administration at this location. LMSC at first was highly resistant to any change; however, with patience and persistence we were able to convince them of the desirability of the changes and I now feel that Lockheed is whole-heartedly with us in making the improvements.

During the course of our negotiations with LMSC to secure necessary changes in the System, considerable attention in many quarters became focused on the problem. The withdrawal of approval of the System reached the attention of the Air Force and Navy at headquarters levels and generated considerable criticism of LMSC from the top and intermediate levels in the two services. Part of this criticism and lack of faith at headquarters level was justified, part was not. In the past several months Lockheed has told us that they feel they have been unjustly criticised and that their prospects for future business have been impaired because of misunderstandings by Department of Defense management. In order to be fair to Lockheed we feel that all effort should be made to dispel the mental image that Lockheed cannot manage their affairs to the point that they continually have an unsatisfactory Accounting System. Lockheed has now shown good faith in presenting a positive plan of correction and we feel it appropriate to give credit where credit is due and inform all parties involved that Lockheed now has a satisfactory system. Your personal effort in this area will be appreciated.

Sincerely


JAMES H. VORLES, JR.
Colonel, USAF
AF Plant Representative

14-00000

163

~~SECRET~~

SPACE SYSTEMS DIVISION
UNITED STATES AIR FORCE

ABRIDGED PACKAGE

648B - AGENA D

2 APRIL 1962

DOWNGRADED AT 12 YEAR
INTERVALS. NOT AUTOMATICALLY
DECLASSIFIED. DOD DIR 5800.10

~~SECRET~~

62-40502

UNCLASSIFIED

TABLE OF CONTENTS

Foreword	
Program Summary	1-1
Program Objectives	2-1
Master Schedules	3-1
Financial Section	4-1
Individual Justification	5-1

UNCLASSIFIED

UNCLASSIFIED

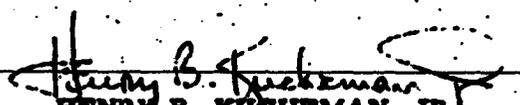
FOREWORD

1. This document is submitted in conformance with AFSC direction for FY-63 and FY-64 financial requirements submission in the consolidated program guidance.

2. Hq USAF has directed that the R&D effort on the basic Agena D contract (AF 04(695)-21) will be amortized among the program users. No component improvement effort will be included in the fixed price for follow-on vehicles. The component improvement program will be submitted and justified separately and will appear as an Agena D line item in the budget.

3. This plan is submitted to provide for improved reliability, producibility, mission adaptability and serviceability of the production Agena D. The accomplishment of this plan will reduce checkout requirements and production unit costs.

4. This plan was reviewed by the SSD Program Budget Review Committee (PBRC) on 28 March 1962 and the Hq USAF/AFSC Joint Review Team (JRT) on 2 April 1962 and received their approval.


HENRY B. KOCHEMAN, JR.
Colonel, USAF
Deputy for Agena

UNCLASSIFIED

UNCLASSIFIED

PROGRAM SUMMARY

UNCLASSIFIED

UNCLASSIFIED

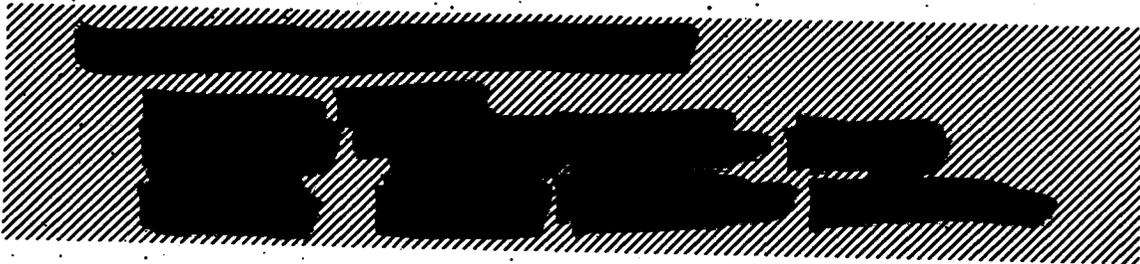
D. Funding Guidance

1. Reimbursable funds will be used to fund the Agena D program with program funds transferred to the reimbursable account upon Agena D DD-250 delivery to the using programs.
2. Hq USAF has directed that the R&D effort on the basic (AF 04(695)-21) contract will be amortized among the program users. No component improvement effort will be included in the fixed price for the follow-on vehicles.
3. The component improvement program will be submitted and justified separately and will appear as an Agena D line item in the Budget.

II. Agena D Component Improvement Program

A. Objectives

1. The primary objectives of this program will be to improve the reliability, mission adaptability, serviceability, and producibility of the production Agena D.
2. With the accomplishment of these objectives, the goal will be to reduce checkout requirements and production unit costs.



UNCLASSIFIED

UNCLASSIFIED

COMPONENT DEPARTMENT PROGRAM STATUS

I. Background

A. Authorization

1. The increased activity in space programs generated interest in feasibility of designing a standardized AGENA vehicle to perform the necessary ascent functions common to all space programs. On 30 June 1961 the AGENA standardization study was authorized. This study proved technical feasibility, and on 25 August 1961 INSD was authorized to develop and manufacture twelve (12) "Standard AGENA" vehicles with a first launch programmed for January 1963.
2. On 17 October 1961 the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed a special committee chaired by Mr. Clarence L. Johnson to investigate ways and means of providing a more reliable AGENA on an accelerated schedule. This committee recommended acceleration, and on 7 November 1961 Dr. Charyk and General B. A. Schriever authorized go-ahead on the present accelerated schedules.

B. Program Objectives

1. The prime objectives of the accelerated AGENA D program are two-fold:
 - a. To produce a more reliable standardized basic vehicle capable of performing essential ascent and/or orbital functions derived from common mission requirements or all satellite system programs.
 - b. To provide a fixed-price procurement source for AGENA D vehicles.
2. To accomplish these prime objectives the Johnson committee basic ground rules have been implemented and govern the development of the AGENA D. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, inclosed area, and extraordinary program management channels.

C. Contracts

1. The basic (AF 04(695)-21) contract provides for delivery of 12 flight vehicles, plus one DTV with the first AGENA D launch scheduled for June 1962. This contract also provides for the necessary tooling to support a five-per-month production rate.
2. The follow-on (AF 04(695)-66) contract will provide production line units at a rate commensurate with consolidated space program requirements on a fixed-price basis.

UNCLASSIFIED

UNCLASSIFIED

**CONVENTION ACCELERATED
PROGRAM STUDY**

I. Background

A. Authorization

1. The increased activity in space programs generated interest in feasibility of designing a standardized AGENA vehicle to perform the necessary ascent functions common to all space programs. On 30 June 1961 the AGENA standardization study was authorized. This study proved technical feasibility, and on 25 August 1961 INSD was authorized to develop and manufacture twelve (12) "Standard AGENA" vehicles with a first launch programmed for January 1963.

2. On 17 October 1961 the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed a special committee chaired by Mr. Clarence L. Johnson to investigate ways and means of providing a more reliable AGENA on an accelerated schedule. This committee recommended acceleration, and on 7 November 1961 Dr. Charyk and General B. A. Schriever authorized go-ahead on the present accelerated schedules.

B. Program Objectives

1. The prime objectives of the accelerated AGENA D program are two-fold:

a. To produce a more reliable standardized basic vehicle capable of performing essential ascent and/or orbital functions derived from common mission requirements or all satellite system programs.

b. To provide a fixed-price procurement source for AGENA D vehicles.

2. To accomplish these prime objectives the Johnson committee basic ground rules have been implemented and govern the development of the AGENA D. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, inclosed area, and extraordinary program management channels.

C. Contracts

1. The basic (AF 04(695)-21) contract provides for delivery of 12 flight vehicles, plus one DTV with the first AGENA D launch scheduled for June 1962. This contract also provides for the necessary tooling to support a five-per-month production rate.

2. The follow-on (AF 04(695)-66) contract will provide production line units at a rate commensurate with consolidated space program requirements on a fixed-price basis.

UNCLASSIFIED

UNCLASSIFIED

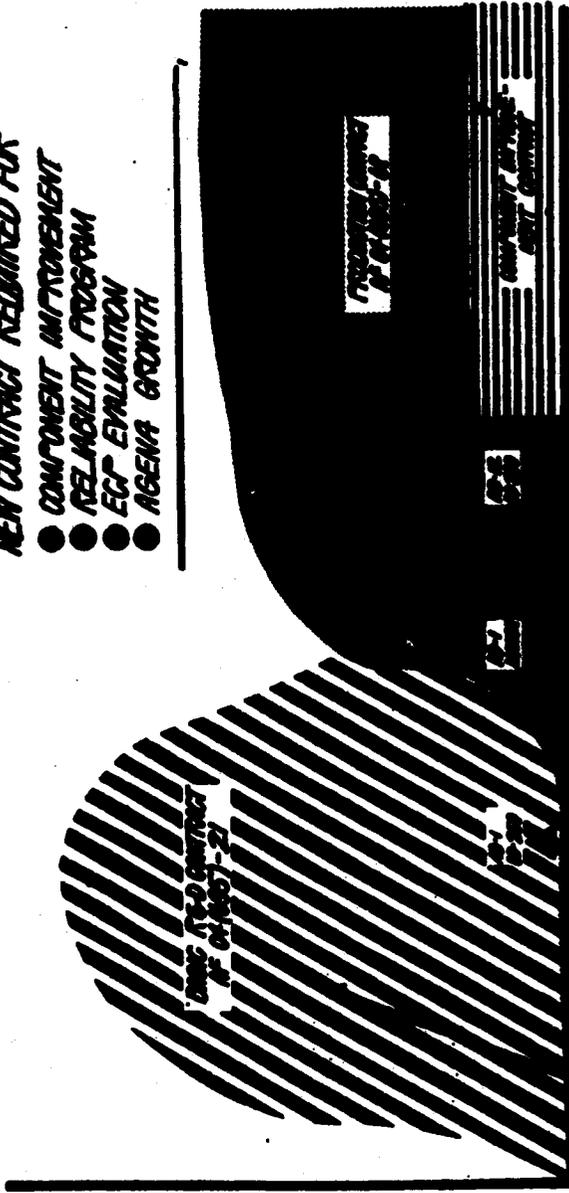
PROGRAM OBJECTIVES

UNCLASSIFIED

AGENA "D" DEVELOPMENT / PROCUREMENT PHASING PLAN

UNCLASSIFIED

- NEW CONTRACT REQUIRED FOR
- COMPONENT IMPROVEMENT
 - RELIABILITY PROGRAM
 - ECF EVALUATION
 - AGENA GROWTH



- BASIC CONTRACT PROVIDED
- PTA, TTY, STY, MOCKUPS, DTY
 - 12 FLIGHT VEHICLES
 - PRODUCTION PACKAGE
 - DOWNING
 - MODEL SPECS
 - ASSISTANCE PROCEDURES

- PRODUCTION CONTRACT PROVIDED
- PRODUCTION RATE AT 6 VEHICLES/MONTH
 - CONFIGURATION CONTROL
 - FIXED PRICE CONTRACT

UNCLASSIFIED

COMPONENT IMPROVEMENT PROGRAM

UNCLASSIFIED

OBJECTIVES -

1. IMPROVE RELIABILITY, PRODUCIBILITY & SERVICEABILITY
2. IMPROVE MISSION ADAPTABILITY
3. REDUCE CHECKOUT REQUIREMENTS
4. REDUCE COSTS
5. PERMIT SUITABLE GROWTH

UNCLASSIFIED

UNCLASSIFIED

MASTER SCHEDULES

(AGENDA D)

UNCLASSIFIED

AGENDA BACKGROUND

- STANDARDIZATION STUDY _____ 30 JUNE 1961
- INITIAL GO-AHEAD _____ 25 AUG 1961
- ACCELERATED GO-AHEAD _____ 7 NOV 1961
- FIRST LAUNCH _____ JUNE 1962
- PROGRAM OBJECTIVES
 1. STANDARDIZATION
 2. RELIABILITY, PRODUCTIBILITY & REDUCED COST
 3. FIXED PRICE PROCUREMENT
- SCHEDULE
 1. BASIC CONTRACT - 12 VEHICLES
 2. FOLLOW-ON CONTRACT - COMMENSURATE WITH REQUIREMENTS (CAPACITY 5/MO.)

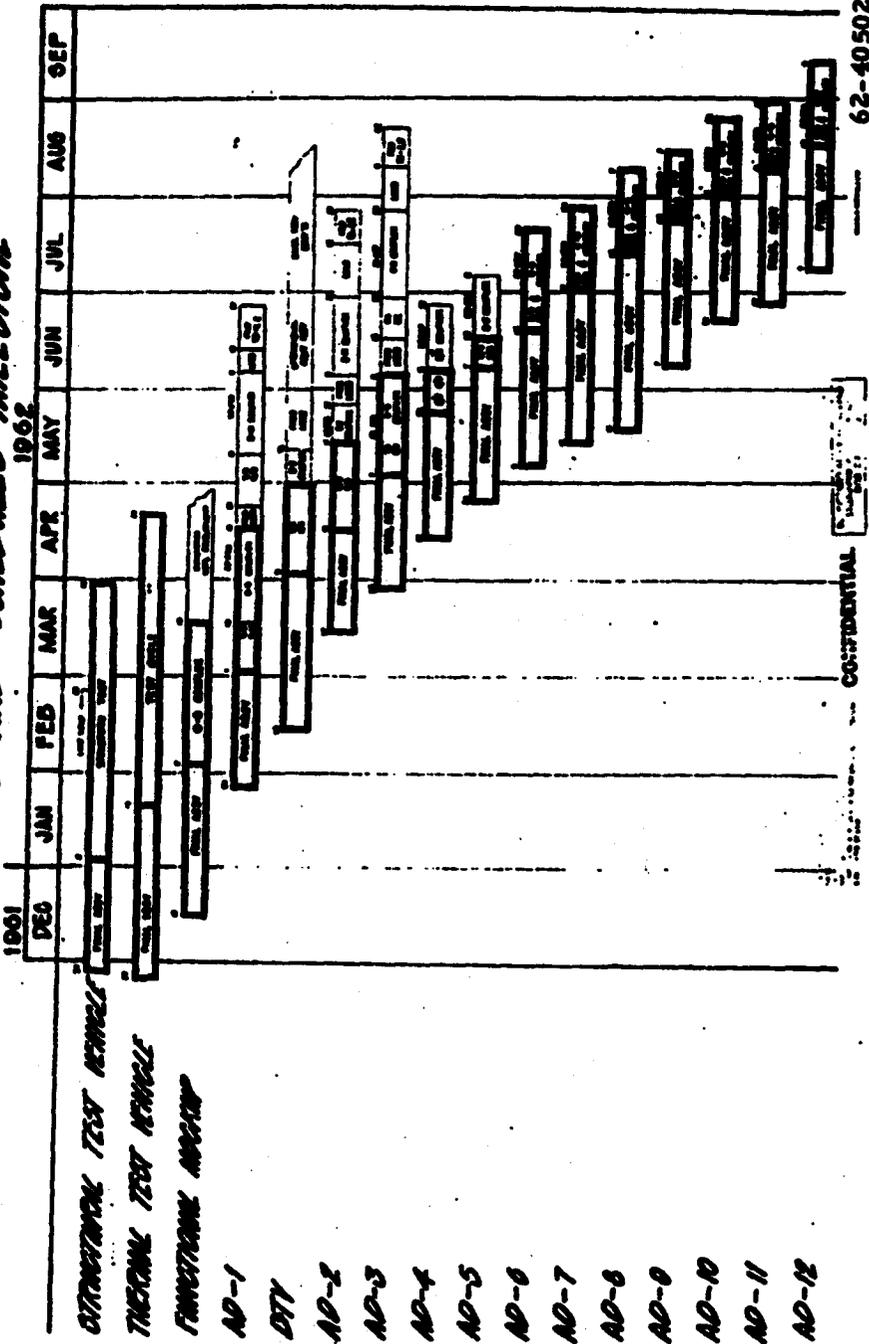
CONFIDENTIAL

CONFIDENTIAL

~~CONFIDENTIAL~~

CONFIDENTIAL

PROGRAM 648 B MASTER PROGRAMS AND SCHEDULED MILESTONE

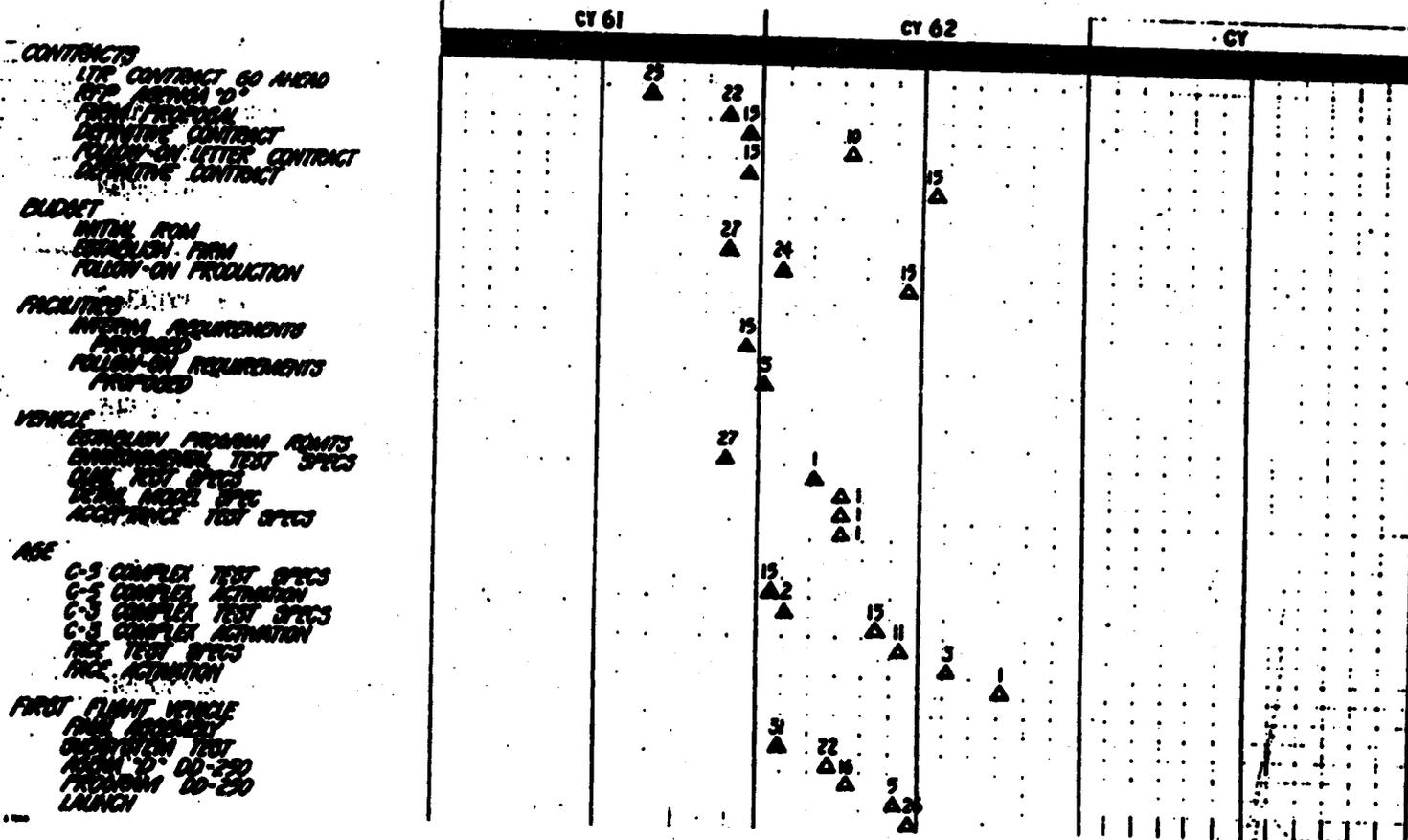


62-40502

CONFIDENTIAL

~~CONFIDENTIAL~~

PROGRAM 648B MAJOR MILESTONES



SECRET

SECRET

UNCLASSIFIED

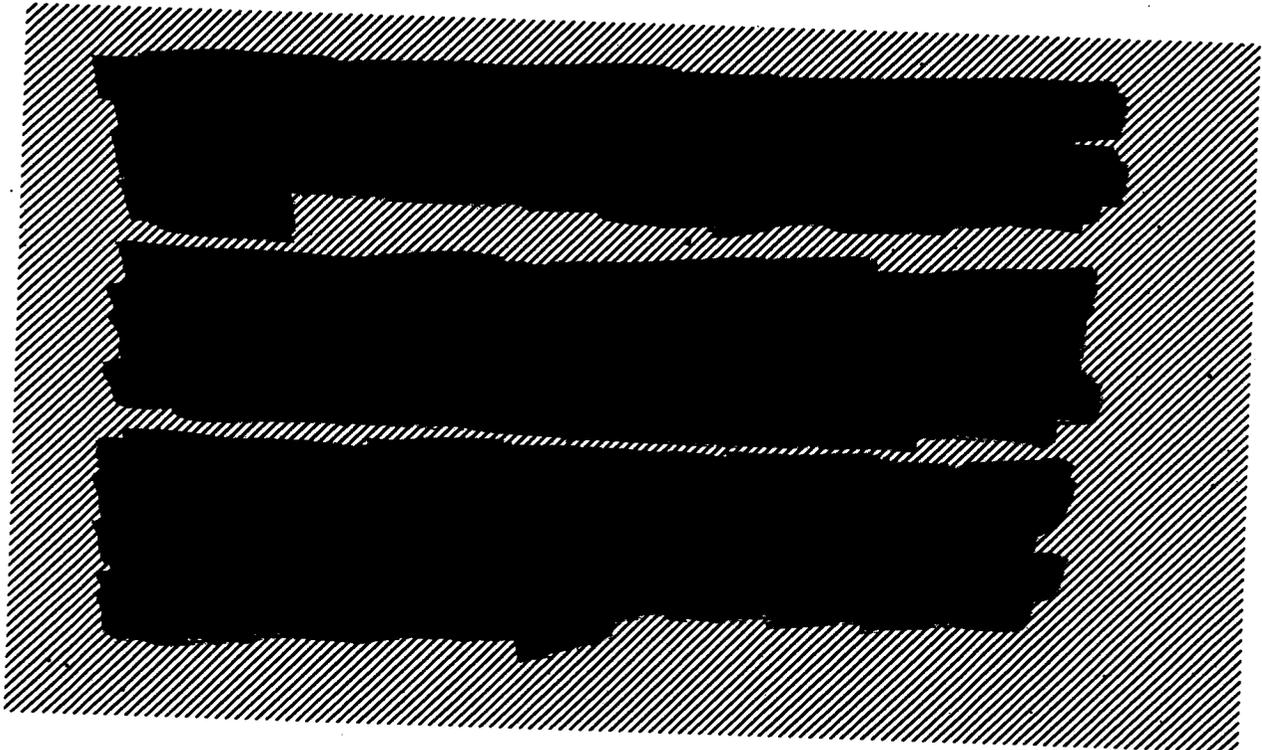
418

FINANCIAL SECTION

UNCLASSIFIED

UNCLASSIFIED

FINANCIAL SECTION



UNCLASSIFIED

FUNDING GUIDANCE

- PROGRAM FUNDED WITH REIMBURSABLE FUNDS
- R & D COSTS AMORTIZED BY USING PROGRAMS
- NO R & D EFFORT ON FOLLOW-ON CONTRACT
- COMPONENT IMPROVEMENT SUBMITTED & JUSTIFIED SEPARATELY
- AGENDA D LINE ITEM IN BUDGET

UNCLASSIFIED

4-2

UNCLASSIFIED

OVER CEILING

SECTION II - FINANCIAL ESTIMATES (Dollar Amounts in Millions to Two Decimals)	COMBINED ON OTHER AGENCY		SYSTEM PROGRAM NUMBER				DATE PREPARED			
	AFSC		648B				2 April 1962			
	SUBJECT/ PROGRAM CODE	PRIOR YEARS	CURRENT FY 1962 ESTIMATED	FY 63	FY 64	FY 65	FY 66	FY 67	BALANCE IN CAR- RIES	TOTAL
57 X 3600 Research, Development, Test and Evaluation	6399	0	0	0	0	0	0	0	0	0

UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED

422

INDIVIDUAL JUSTIFICATION

UNCLASSIFIED

UNCLASSIFIED

~~SENSITIVE FOR SECURITY PURPOSES~~

1. INSTRUMENTATION: Horizon Sensor Mod III.

2. SENSITIVE DATA

3. PROBLEMS:

4. INSTRUMENTATION: The horizon sensor is a precision instrument which indicates the attitude of the Agena with respect to a local vertical defined by the earth's horizon. This unit detects pitch and roll attitude deviations, from the local vertical, to less than 0.1 degree. The sensor generates linear output signals which control pitch and roll attitudes of the Agena.

5. SPACE PROGRAM ERROR: This unit will overcome the deficiencies indicated in Item 6 below. This unit will permit flexibility in the time of launch and use of the Agena. The reliability and life of the instrument will be improved to meet all the requirements of the using programs.

6. JUSTIFICATION: The horizon sensor should provide the Agena vehicle with an accurate long term vertical reference which is required to assure proper attitude control during the Agena ascent, orbit, and recovery phases. The accuracy of this attitude reference should approach $\pm 0.1^\circ$. The present horizon sensors available for use on the Agena have performance deficiencies which can only be corrected by a complete redesign approach.

The first deficiency is an attitude accuracy capability estimated to be on the order of $\pm 0.4^\circ$. This is inherent in the instrument mechanism and cannot be greatly improved by minor changes.

The second deficiency arises because the present Mod II sensors either fail to control the vehicle or control it erroneously during those times when the sun is in the field of view. The two headed Mod II sensor system with its 2 large conical scans and large fields of view has a high probability of viewing the sun on at least one phase, (ascent, orbit, or recovery), of many Agena missions. When the sun does fall within the field of view the first response of the sensor is to produce an attitude error. This error builds up until the head viewing the sun is disabled. When this occurs the system is capable of providing long-term pitch control only and roll reference is lost. With the present configuration this problem with the sun is insurmountable.

The present approach for overcoming this inadequate performance is to launch the vehicles during a very narrow launch window in which it is calculated that the horizon sensor will not view the sun. This is a severe limitation on the flexibility required of the Standard Agena.

The third deficiency is in the susceptibility of the present systems to earth infra-red gradients caused by high cold clouds. When severe IR gradients occur on the earth, the sensor responds and an attitude error is generated. Analysis of TIROS IR data has shown that these severe gradients occur much more frequently than was expected when the present sensors were designed.

UNCLASSIFIED

UNCLASSIFIED

More complete knowledge of the IR character of the earth is being accumulated. Utilizing this knowledge and advancements in the state-of-the-art presently available, all of these major deficiencies can be eliminated by the development of a new sensor.

7. DEVELOPMENT PERIOD: 15 Months.

8. PRODUCTION BREAK IN DATE: Oct 63



11. BUYER: Mr. E.S. Silberman

12. PROJECT ENGINEER:

Maj E.A. Lembeck
SMAE-2
X-4013

COORDINATION:

Edward J. Blum
Deputy for Engineering 648

APPROVAL:

Henry B. Friedman
Director 448
Colt AR

UNCLASSIFIED

UNCLASSIFIED

MEMORANDUM FOR COORDINATE ENGINEER

1. **SUBJECT:** Velocity Meter.

2. **ORIGIN:** GCS

3. **PRIORITY:**

4. **DESCRIPTION:** The velocity meter measures the velocity gain and initiates engine cutoff at the desired velocity. The velocity meter consists of two major parts: A pulse output accelerometer and a pulse counter. The accelerometer produces output pulses, the rates of which are proportional to acceleration. The integral of this is simply the number of pulses.

5. **SPACE PROGRAM EFFECT:** Through the use of fewer and better parts, and better circuit design, power and weight will be reduced and reliability of the unit will increase. The resulting improvements are as follows:

a. Estimated cost reduction per unit	██████████	15%
b. Parts eliminated	20%	40%
c. Weight reduction	1.8	20%
d. Power reduction	7.4 watts	40%
e. Increase in MTBF of electronics	1950 hrs.	62%

6. **JUSTIFICATION:** The large number of field failures of the velocity meter due to the complexity have been a consistent problem over the last year. The redesign is based on past experience with the present velocity meter from both flight units and test programs, as well as recently completed reliability testing and design reviews. The performance specifications are the same. The production of 22 of the simplified redesigned units will pay for the cost of the development program and the present production rate is scheduled at 7 units per month.

7. **DEVELOPMENT TIME:** 4 Months

8. **PRODUCTION BREAK IN DATE:**
Since this unit is a direct interchangeable replacement, unit can be installed as soon as delivered.

9. **COSTS:** FY 63 ██████████ FY 64 \$ 0 FY 65 \$ 0

10. **TOTAL COST:** ██████████

11. **BUYER:** Mr. E.S. Silberman
SSNDK
X-3911

12. **PROJECT ENGINEER:** Maj E.A. Lambeck
SSMAE-2
X-4013

COORDINATION: Edward J. Blum Col
Deputy for Engineering 6488

APPROVAL: Henry B. Friedman
Director GCS
Col USAF

UNCLASSIFIED

UNCL. 'ED

REQUIREMENTS FOR CURRENT PROGRAM

1. MEASUREMENTS: Not TV Inertial Reference Package (IRP).
2. STATUS: **GO**
3. PROGRESS:
achieved 100%
4. DESCRIPTION: The IRP provides a three-axis attitude reference system for the Agena after separation from the booster. It senses angular rates in the three axes of the Agena. These rates appear as torques on the gyro gimbal which is summed with torques produced by the torque generator. The gyro outputs are fed through pre-amplifiers to the flight control package. Incorporated in the IRP will be three accelerometers to correct for thrust misalignment and to measure velocity.
5. SPACE PROGRAM EFFORT: In addition to improved performance and reliability, costs for the guidance and control subsystem will be reduced. The elimination of the velocity meter will reduce number of aligned components reducing assembly and checkout time.
6. JUSTIFICATION: The IRP provides an attitude reference with respect to inertial space and signals from the gyros are supplied to the flight control system to cause the vehicle to align itself with the reference. The present IRP used gyros that were relatively inexpensive and available in reasonable quantities when the IRP was designed. During the past two years more accurate and reliable gyros have been perfected and are available from several manufacturers. One such gyro is now being used in the roll channel of a few of the present IRP's. No capability exists, either in the present IRP or the Agena vehicle, for thrust misalignment indications and control signals for correcting for thrust misalignment in flight. The proposed development is for a more accurate and versatile IRP utilizing the improved gyros in all three channels and employing three accelerometers for the determination of thrust misalignment. One of the accelerometers will be a high accuracy accelerometer, with the associated circuitry, capable of being used in lieu of the present velocity meter. Additional improvements such as simplified circuitry, use of more modern electronic construction techniques, better interchangeability of gyros from several vendors, and reduced power requirements and weight, will be incorporated. Drift rates of an order of magnitude lower than those available with the present gyros will be attained. The estimated costs include three (3) qualified units for test and evaluation.

7. DEVELOPMENT TIME: *18* months
8. PRODUCTION START IN DATE: *Oct-69-Jan-69*

9. COSTS:


10445


UNCLASSIFIED

UNCLASSIFIED

10. SERIAL COVER



11. BY WHOM: Mr. J. C. [redacted]

12. PROJECT NUMBER

NY 82-368

1003 4/4/71

COORDINATOR:

[Signature] LAC

Chief for Investigative GUS

APPROVED:

[Signature]
Director GUS
CARBNE

421

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT DEVELOPMENT

1. **NOMENCLATURE:** Solid State Programmer.

2. **SYMBOL:** G-68

3. **PROPERTY:**

4. **DESCRIPTION:** The programmer originates switching signals, guidance and control functions that include actuation of hydraulic and pneumatic controls and programming of pitch and yaw command rates. Also, the programmer provides switching signals for firing squibs for allage and retro-rocket functions, calibrating telemetry, and firing payload-interface connector squibs. The proposed development is for a solid-state digital device having the following basic specifications:

- a. Weight less than 22 pounds.
- b. Size less than 450 cu. inches.
- c. Average power less than 20 watts with peak power less than 50 watts from unregulated 28 volts dc source.
- d. Timing accuracy of $.001\% \pm 10$ milliseconds of the set time.
- e. 63 switching functions.
- f. Duration of timing in excess of 36 hours.
- g. Capable of being programmed from an external source both ground and airborne.
- h. Readout of programmed functions.

5. **SPACE PROGRAM EFFECT:** This is an essential item for the Standard Agena since it permits flexibility in programming for many different missions. The reliability and performance will be increased many fold by eliminating the mechanical functional items.

6. **JUSTIFICATION:** The present sequence timer consists of a synchronous motor driving cam operated micro-switches through speed reduction gears. The timing capabilities are limited to 24 events over a period of 6000 seconds. The present timer has, in several cases, jeopardized schedules because of difficulties involved in reprogramming the sequence of events at the launch base because of mission changes, etc. The limited number of events available on the present timers results in combining several events on most switches, which represents a compromise as to the optimum time for some of the events. To alleviate this problem and/or extend the timing period several programs require two timers in order to accomplish their mission. Therefore, a requirement exists for a more versatile programmer which can provide ease and flexibility of programming plus additional capacity. Estimated costs include three qualified units for tests and evaluation.

UNCLASSIFIED

UNCLASSIFIED

7. DEVELOPMENT TIME: ¹⁴ 19 Months.

8. PRODUCTION BREAK IN DATE:
October 65 - 12-66



11. BUYER: Mr. E. J. ~~McGowan~~
~~688B~~
A-3911

12. PROJECT ENGINEER:
CAPT. R. L. Stone
SSAF-2
A-1013-4141

COORDINATION:

Edward J. Blum Lt Col
Deputy for Engineering 688B

APPROVAL:

Henry B. K... Col USAF
Director 688B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT DEVELOPMENT

1. **NOMENCLATURE:** Flight Control Electronics & Junction Boxes.

2. **SYSTEM:** 648B

J. **PRIORITY:**

4. **DESCRIPTION:** The junction boxes provide interconnection, switching, isolation and voltage division functions for the guidance and control equipment. The flight control electronics accepts guidance commands generated by the Inertial Reference Package and converts them into quantities compatible with the requirements of the pneumatic and hydraulic control elements. A series of switching signals from the primary sequence timer defines the modes of control system operation. Relays control power supplied to the electronics package, and they provide the on/off connection signal flow to the pneumatic valve elements. In addition, auxiliary circuits provide checkout, umbilical and telemetry functions.

5. **SPACE PROGRAM EFFECT:** These units will simplify checkout and improve reliability.

6. **JUSTIFICATION:** With the development of a new Horizon Sensor, a Mod IV IRP, and a Yaw Indicator, Modifications of the junction boxes, and the flight control electronics are anticipated in order to accommodate the new or additional signals. The junction boxes provide interconnection, switching, isolation, power distribution, gain setting functions, and T/M signal conditioning for the guidance and control equipment while the flight control electronics accepts guidance commands generated by the IRP and converts these signals into quantities compatible with the requirements of the pneumatic and hydraulic control elements. Modifications are expected to be relatively minor in the case of the new IRP and Horizon Sensor, i.e. impedance matching, etc., however in the case of a yaw angle input, the primary junction box and flight control electronics will be required to accept and correct for an additional source of error.

7. **DEVELOPMENT TIME:** 18 Months

8. **PRODUCTION BREAK IN DATE:**

~~Oct 63~~ Dec 63

11. **BUYER:** Mr. E. A. Silberman

SSHA
X-3911

12. **PROJECT ENGINEER:** Maj E.A. Lembeck

SSHA-2

X-1013-4147

COORDINATION:

Edward J. Blum
Deputy for Engineering 648B

APPROVED:

[Signature]
Director 648B

[Signature]
C.A. BKR

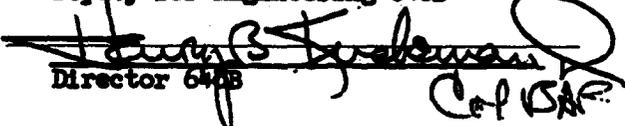
UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT DEVELOPMENT

1. NOMENCLATURE: 400 cps, 115 volt, 3 phase inverter.
2. SYSTEM: 648B
3. PRIORITY:
4. DESCRIPTION: This unit is 400 cps, 115 volt, 3 phase static inverter with extended capability for phase load unbalance to fulfill the system requirement for single phase power. The inverter is to weigh less than 17 pounds and to have power output in the range of 350 to 500 volt amps.
5. SPACE PROGRAM EFFECT: Will enhance the vehicle payload/mission capability by increasing the reliability and decreasing the overall weight, size, cost and complexity of the power system.
6. JUSTIFICATION: The present system utilizes both a 400 cps, 3 phase and 400 cps, 1 phase 115 units. Total weight not including wiring is in the neighborhood of 27 pounds; the proposed unit would be in the neighborhood of 15-17 pounds. Volumetric efficiency would show a similar increase. Although the cost of the new unit would be slightly higher than the cost of the present unit, total cost would show a significant decrease due to the elimination of the additional single phase unit. Fewer total parts would be required thereby increasing reliability.
7. DEVELOPMENT TIME: 6 Months.
8. PRODUCTION BREAK IN DATE: 90 Days after completion of development.
9. 
10. 
11. BUYER: Mr. E. S. Silberman
SSHDK
X-3911
12. PROJECT ENGINEER: Capt W.H. Ritchie
SSHAE-1
X-4121

COORDINATION: 
Deputy for Engineering 648B

APPROVAL: 
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT

1. NOMECLATURE: DC to DC Converters.

2. SYSTEM: 648B

3. PRIORITY:

4. DESCRIPTION: The present DC to DC converter supplies regulated plus and minus voltages to the Guidance and Control System of the Agena "D". Proposed product improvement would provide for "state-of-the-art" improvements of the present converter after completion of testing covered under the present contract. This effort would cover only the incorporation of minor design changes realized by the improvement of piece parts, changes due to specific problem areas, or significant requirement changes as a result of improvements in the Guidance and Control area.

5. SPACE PROGRAM EFFECT: As a result of expanded usage, better evaluation and better parts, the reliability of the units will be increased. Provisions will be made to incorporate the requirements of MIL I 26600 "Interference Control Requirements".

6. JUSTIFICATION: There is insufficient usage on the present units to determine if specific problem areas exist; the proposed product improvement would cover such areas as determined by experience with these units. Continued piece parts improvements are being made which should be incorporated on a scheduled timely basis. Further, product improvements in the Guidance and Control area could result in requirement changes thereby dictating a change or changes in the power supply.

7. DEVELOPMENT TIME: 15 Months.

8. PRODUCTION BREAK IN DATE:
Oct 63.

9. 

10. 

11. BUYER: Mr. E. S. Silberman
SSHDK
X-3911

12. PROJECT ENGINEER: Capt A.R. Ellisen
SSHAE-1
X-4121

COORDINATION:


Deputy for Engineering 648B

APPROVAL:


Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT

1. NOMENCLATURE: Primary Battery.

2. SYSTEM: 648B

3. PRIORITY:

4. DESCRIPTION: This battery has 16 silver proxide zinc cells and uses potassium hydroxide as the electrolyte. Battery will weigh less than 110 pounds and will have amp hour rating in excess of 400.

5. SPACE PROGRAM EFFECT: This battery will have improved reliability, producibility without increase in costs.

6. JUSTIFICATION: This battery will have an increase in capacity greater than 15 percent. The present batteries have a minus 3 sigma value of 8200 watt hours. This new development will provide batteries with a minimum of 10,000 watt hours. With the present batteries the watt hour spread between minus 3 sigma and nominal watt hour rating is in excess of 10 percent, however with improvement in control of manufacturing of positive plates the watt hour spread will be approximately 3 percent; thereby permitting a more accurate forecast of power available for the Agena vehicle.

7. DEVELOPMENT TIME: 15 Months

8. PRODUCTION BREAK IN DATE:
Oct 63

9. 

10. 

11. BUYER: Mr. E.S. Silberman
SSHDK
X-3911

12. PROJECT ENGINEER: Maj L.A. Daggett
SSHAE-1
X-4121

COORDINATION:

Edward H. Bloom dx Col
Deputy for Engineering 648B

APPROVAL:

Henry W. Friedman
Director 648B

Col BAR

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT DEVELOPMENT

1. NOMENCLATURE: Yaw Attitude Indicator.

2. SYSTEM: 648B

3. PRIORITY:

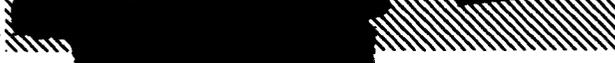
4. DESCRIPTION: This is a device which will detect yaw attitude deviations and generates output signals which control yaw attitude of the Agena.

5. SPACE PROGRAM EFFECT: This unit will improve the capability of obtaining desired orbits or trajectories. The yaw indicator will increase the capability to analyse attitude data from Agena vehicles.

6. JUSTIFICATION: It has become more evident with each Agena launch, that an accurate, independent, yaw attitude sensor is required. Presently available equipment such as the Sun Position Indicator is either too inaccurate or as with the control moment gyros is coupled into the attitude system in a manner which does not allow interpretation of the data. During ascent and on orbit the yaw attitude of the Agena is controlled by a gyro compassing technique, relies on the pitch and roll motion of the vehicle. Any errors in roll Horizon Sensing will cause a yaw error which cannot be measured or corrected with the present system. An accurate indicator is not only needed for readout and subsequent vehicle motion analysis, but as a yaw reference input to the control system.

7. DEVELOPMENT TIME: 18 Months.

8. PRODUCTION BREAK IN DATE:
1 Jan 64

9. 
10. 

11. BUYER: Mr. E. S. Silberman
SSHDK
X-3911

12. PROJECT ENGINEER: Capt R.L. Stone
SSHAE-2
X-4013

COORDINATION: Edward J. Blum Lt Col
Deputy for Engineering 648B

APPROVAL: [Signature]
Director 648B

UNCLASSIFIED

REQUIREMENT FOR COMPONENT DEVELOPMENT

1. **NOMENCLATURE:** Electro-explosive Device Range Requirements.
2. **SYSTEM:** 648B
3. **PRIORITY:**
4. **DESCRIPTION:** This analysis, design and development effort would provide electro explosive devices (EED's) capable of meeting launch base requirements. IMSC would conduct in-house analysis work, procure samples of existing hardware developed for other programs and conduct tests of this hardware. At the same time the Franklin Institute would conduct tests of the present Agena hardware to determine its capability of meeting a 100 watts/sq. meter condition. Following this and depending upon the results a development and qualification program will be conducted. The electrical aspects of the EED's will be investigated to determine the optimum design for lamp, 1 watt "No Fire" for each type of EED. Then tests will be conducted of the selected designs to determine current vs function time for various combinations of temperatures and pressures. In addition Bruceton Analyses of the designs for no fire, all fire, recommended current, etc. will be conducted. The electrical work will be followed by performance evaluation of each type of EED to check peak pressure and function time at ambient conditions for minimum "All Fire" and recommended "Fire Current". Peak pressure and function time will be checked at low temperatures, high temperatures, after thermal cycling and after altitude exposure. Auto ignition temperature will be established and environmental tests conducted (acceleration, vibration, shock, etc.) Following these tests, qualification and reliability programs will be conducted.

Other vehicle electrical aspects will be investigated such as:
1) the possibility of a new battery design and qualification just for EED operation, 2) lengthening the D-timer, and requalifying it, to provide for additional switches required by the added power in parallel operation of squib actuated devices.

5. **SPACE PROGRAM EFFECT:** All programs will be effected when the range requirements are strictly enforced. AGE will require modifications to meet higher current requirements.
6. **JUSTIFICATION:** AMR has temporarily relaxed their very strict requirements that all EED's be capable of withstanding no-fire criteria of one amp for 5 minutes, one watt for 5 minutes and 2 watts for 5 minutes of real power where RF attenuation is provided. Present information indicates that compliance with these requirements will be mandatory 1 January 1963 for all systems, with a waiver period extending to 1 January 1964. AMR is also revising their no-fire requirements for all new vehicles and is favoring the use of a specified range environment.

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT, Cont.

7. DEVELOPMENT TIME: 14 Months

8. PRODUCTION BREAK IN DATE:

Sep '63

(Note: M-79 squibs should be available sooner depending upon how Agena D chooses to fund that work)

438

9.



FY65

10.

11. BUYER: Mr. E. S. Silberman
SEHDK
X-3911

12. PROJECT ENGINEER; Capt G.W. Watts
SEHAA-2
X-3913

COORDINATION:

Edward J. Blum & Col
Deputy for Engineering 648B

APPROVAL:

[Signature]
Director 648B

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT

1. **NOMENCLATURE:** Orbit and Nuclear Radiation Effects on Electro-Explosive Devices
2. **SYSTEM:** 648B
3. **PRIORITY:**
4. **DESCRIPTION:** This investigation would be directed toward determining the effects of orbit and nuclear radiation on electro-explosive devices (EED's). The explosive effects will be measured at the time the explosive device is to be irradiated such as 1) threshold energies for initiation, 2) transient times of reaction. The explosive behavior after being removed from the radiation field will be measured. The change produced in explosives as a result of exposure to radiation at several dosage rates will be considered. The explosives will be irradiated and then the physical characteristics (tensile, strength, etc), the burning rate as a function of time, the explosive characteristics, and the performance characteristics will be checked.

This will be a two phase program with Phase I as described above, to determine problem areas, and Phase II to study the problems uncovered during Phase I and determine solutions if possible.
5. **SPACE PROGRAM EFFECT:** By evaluating orbit and nuclear radiation effects on EED's, redesigns or shielding may be established to increase the reliability of EED activated functions.
6. **JUSTIFICATION:** Little information is presently available on radiation effects on EED's. Many orbit and de-orbit operations depend on their reliable operation after exposure to radiation.
7. **DEVELOPMENT TIME:** 15 Months
8. **PRODUCTION BREAK IN DATE:** Unknown. Depends on problems uncovered.
9. **COSTS:**  1044  FY65

(*Note: This cost is for Phase I only. Phase II costs are underminable at this time.)

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT, Cont.

10. TOTAL COST: [REDACTED] (Phase I only)

11. BUYER: Mr. E. S. Silberman
SSXDK
X-3912

12. PROJECT ENGINEER: Capt G.W. Watt
SSHAA-2
X-3913

COORDINATION: *Edward H. [unclear] LXC*
Deputy for Engineering 648B

APPROVAL: *Henry B. [unclear]*
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT, Cont.

10. TOTAL COST: [REDACTED] (Phase I only)

11. BUYER: Mr. E. S. Silberman
SSKDK
X-3911

12. PROJECT ENGINEER: Capt G.W. Watt
SSHAA-2
X-3913

COORDINATION:

Edward J. [unclear] LXL
Deputy for Engineering 648B

APPROVAL:

Henry B. [unclear]
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR COMPONENT IMPROVEMENT

1. **NOMENCLATURE:** Massachusetts Institute of Technology Support.
2. **SYSTEM:** 648B
3. **PRIORITY:**
4. **DESCRIPTION:** This is "on call" technical support by M.I.T. Instrumentation Laboratory to assist SSD and IMSC in guidance and control problems.
5. **SPACE PROGRAM EFFECT:** This support provides fast reaction capability for Agena guidance and control problems, and technical support to Space System Division.
6. **JUSTIFICATION:** Since 1954, the MIT Instrumentation Laboratory has supported the guidance and control effort of the Agena office through design of attitude control systems, computer studies for feasibility and system optimization, continual consultation in gyro and attitude control techniques, and active participation in guidance and control conferences with IMSC. In addition to work of an advanced engineering nature, MIT also serves to check results of various IMSC studies by taking an independent approach to the problem using more complete and theoretically accurate equations. Usually this is in the form of computer analyses, a field in which MIT has considerable experience, capability and equipment. The Agena program should continue to take advantage of their demonstrated capability and intimate knowledge of the Agena vehicle. The estimated cost of this support is \$300,000 annually; the present contract expires 31 December 1962. It is requested that the budget for FY 63 include \$150,000 and future budgets include \$300,000 each year for this continued effort.
7. **DEVELOPMENT TIME:** N/A
8. **PRODUCTION BREAK IN DATE:** N/A

9. **COSTS:**



10. **TOTAL COST:**

11. **BUYER:** Mr. E.S. Silberman
SSHDK
X-3911

12. **PROJECT ENGINEER:** Maj E.A. Lembeck
SSHAE-2
X-4013

COORDINATION:

Edward J. Blum
Deputy for Engineering 648B

APPROVAL:

John P. Kuchera
Director 648B

Col VSAE

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR GENERAL ENGINEERING

1. NOMENCLATURE: General Engineering
2. SYSTEM: 648B
3. PRIORITY:
4. JUSTIFICATION: General Engineering consists of the System Engineering, Detail Design, and other engineering activities needed to:

a. Diagnose faulty behavior of the design as revealed in flight or on the production line; then create, qualify, and phase-in appropriate fixes.

b. Introduce specific component improvement items into the total system.

Whenever flight results or production problems are judged by on-the-scene personnel to reflect a deficiency in the Agena D design, it will be necessary for Agena D engineers to enter the picture and confirm whether a design (or system) problem exists. Then, where the problem is real, effort must be organized quickly to change designs, documentation, or other factors to solve it. Design changes should be subjected to design review as well as to the testing in the System Development Laboratory prior to (or, as an absolute minimum, concurrent with) their introduction into production. Many of the changes will also affect documentation, checkout equipment, logistics planning, interface with using programs, and other related activities.

In like fashion, as component improvement activities progress, their impact on each other and on the remainder of the systems requires careful analysis and coordination. Improvements that approach maturity must be subjected to design review and system testing to catch unforeseen side effects before it is too late. In some cases incidental changes will be necessary elsewhere in the system to accommodate a major component improvement; these must be identified, designed, and qualified.

5. DEVELOPMENT TIME: Continuing Effort
6. COSTS: 
7. TOTAL COSTS: 
8. BUYER: Mr. E. S. Silberman
SSHD
Ext 3911
9. PROJECT ENGINEER: Lt Col E. F. Blum
SSHD
Ext 4141

COORDINATION:

Edward F. Blum Lt Col
Deputy for Engineering 648B

APPROVAL:

Edward S. Silberman
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR GENERAL ENGINEERING

1. NOMENCLATURE: General Engineering
2. SYSTEM: 648B
3. PRIORITY:
4. JUSTIFICATION: General Engineering consists of the System Engineering, Detail Design, and other engineering activities needed to:

a. Diagnose faulty behavior of the design as revealed in flight or on the production line; then create, qualify, and phase-in appropriate fixes.

b. Introduce specific component improvement items into the total system.

Whenever flight results or production problems are judged by on-the-scene personnel to reflect a deficiency in the Agena D design, it will be necessary for Agena D engineers to enter the picture and confirm whether a design (or system) problem exists. Then, where the problem is real, effort must be organized quickly to change designs, documentation, or other factors to solve it. Design changes should be subjected to design review as well as to the testing in the System Development Laboratory prior to (or, as an absolute minimum, concurrent with) their introduction into production. Many of the changes will also affect documentation, checkout equipment, logistics planning, interface with using programs, and other related activities.

In like fashion, as component improvement activities progress, their impact on each other and on the remainder of the systems requires careful analysis and coordination. Improvements that approach maturity must be subjected to design review and system testing to catch unforeseen side effects before it is too late. In some cases incidental changes will be necessary elsewhere in the system to accommodate a major component improvement; these must be identified, designed, and qualified.

5. DEVELOPMENT TIME: Continuing Effort

6. COSTS:

7. TOTAL COSTS:

8. BUYER: Mr. E. S. Silberman
SSHDK
Ext 3911

9. PROJECT ENGINEER: Lt Col E. F. Blum
SSHDK
Ext 4141

COORDINATION:

Edward F. Blum Lt Col
Deputy for Engineering 648B

APPROVAL:

Henry B. Kridman
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR DEVELOPMENT TEST LABORATORY

1. NOMENCLATURE: Development Test Laboratory
2. SYSTEM: 6483
3. PRIORITY
4. JUSTIFICATION: A Development Test Laboratory, currently being established, will be needed during this time period to support the continuing Agena D engineering activity. Changes found necessary as a result of flight failures and/or marginal behavior seen in flight must be "qualified" in a system sense before incorporation into the Agena D production line. If this were not done there would be serious risk of additional failure due to unforeseen side effects of innocent-appearing changes; furthermore, the production activity would be slowed and rendered inefficient by the introduction of untested changes.

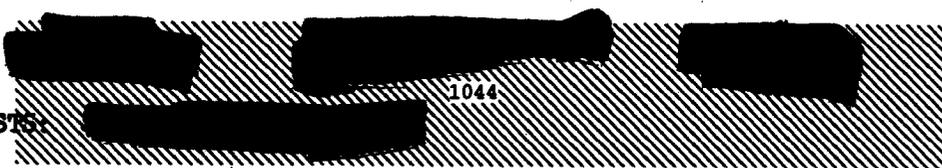
Similarly, substantial changes resulting from component improvement or other value-engineering type activities should be validated in the laboratory before committing them to production.

The laboratory will permit checking interaction of a given change with the remainder of its subsystem and with other subsystems of the vehicle. In addition, it will afford an opportunity to check the interaction with various payloads before they are frozen.

The proposed amount will support a cadre of laboratory personnel to maintain the laboratory as a facility and to conduct tests at a "normal" level which Program 648B has been directed to fund. Additional personnel may be required under special circumstances; presumably supplementary funds would be available from using programs to support major activities involving mission-peculiar items.

5. DEVELOPMENT TIME: Continuing Effort

6. COSTS:



7. TOTAL COSTS:

8. BUYER: Mr. E S. Silberman
SSHDK
Ext 3911

9. PROJECT ENGINEER: Major J. Barnes
SSHDK
Ext 3911

COORDINATION:

Edward J. Blum
Deputy for Engineering 648B

APPROVAL:

Henry B. Johnson
Director 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR RELIABILITY PROGRAM

1. NOMENCLATURE: Reliability Program

2. SYSTEM: 648B

3. PROJECT:

4. JUSTIFICATION: A substantial effort will be made by reliability engineers to upgrade the existing reliability of selected critical items. The engineering design will be reviewed for reliability adequacy and control and specific recommendations will be made. Attention will be directed to production operations and the logistics phases to assure reliability achievement in reliability engineers and also diagnose flight failures and malfunctions. Continual effort will be made on system failure mode analysis and changes will be expeditiously processed. This is a continuation of the current reliability program.

Reliability will be a major factor in planning, management and engineering in all component improvement. Reliability requirements will be established for each new design consistent with the reliability objectives on existing designs. Modified designs will be given reliability requirements where appropriate. Emphasis on design for reliability will result in a mature design of hardware suitable for production and use in the operational environment. Hi-reliability parts and preferred parts will be used in each new and modified design and reliability and design engineers will assure that the parts are properly applied in the system. Prediction of reliability and measurement of achieved reliability will be performed at pre-planned steps throughout the design, development and evaluation. Reliability engineers will work with design, manufacturing and purchasing to assure control of reliability. This planned approach is necessary to minimize subsequent degradation of inherent reliability of the design due to variations in manufacturing, maintenance, storage, transportation, and/or operational process. In order to mature the design as early as possible, collected analysis and feed back of information to the responsible action organization will be accomplished. The plan for demonstration of the achieved reliability of each new and modified design will be implemented to assure compliance with the requirements.

5. DEVELOPMENT TIME: Continuing Effort

6. COSTS:

7. TOTAL COSTS:

8. BUYER: Mr. E. S. Silberman
SSXDK
Ext 3911

9. PROJECT ENGINEER: Major D. Kennedy
SSHAR
Ext 4063

COORDINATION:

Edward H. Blum
Deputy for Engineering 648B

APPROVAL:

[Signature]
Director 648B

UNCLASSIFIED

REQUIREMENT FOR SANTA CRUZ TEST BASE SUPPORT:

1. NOMENCLATURE: Santa Cruz Test Base Support

2. SYSTEM: 648B

3. PRIORITY

4. JUSTIFICATION: The Santa Cruz Test Base is used by INSC for remote tests of a hazardous nature. Testing of the rocket engine, ullage rockets, propellants, complete propulsion system, pneumatic and hydraulic systems, destruct devices, pyrotechnics and prima cord separation devices, is accomplished at this test base. This support effort is required to support the flight test program and the production line. Exploration of equipment failures and/or redesign must be tested before incorporation in the production vehicles. All changes that effect equipments that require testing of a hazardous nature will be tested at SCTB. This must be done on the component, subsystem and system basis in order to insure reliability improvement.

The effort proposed under this item will provide a minimum effort to support testing that can be envisioned by previous experience in flight failures, design changes and to support the component improvement program as proposed. SCTB will be partially supported in FY 63 by the Agena B programs.

5. COST: [REDACTED]

7. TOTAL COSTS: [REDACTED]

8. BUYER: Mr. E. S. Silberman
SSHDK
Ext 3911

9. PROJECT ENGINEER: Lt Col R. Le Beck
SSHAA
Ext 3940

COORDINATION:

Edward J. Blum Lt Col
Deputy for Engineering, 648B

APPROVAL:

[Signature]
Director, 648B

UNCLASSIFIED

UNCLASSIFIED

REQUIREMENT FOR AEROSPACE GROUND EQUIPMENT

1. NOMENCLATURE: Aerospace Ground Equipment: (AGE)
2. SYSTEM: 648B
3. PRIORITY:
4. JUSTIFICATION: Aerospace Ground Equipment: (AGE) consists of two manual test stations and one automatic test station. Each test station consists of electrical and mechanical test equipment necessary to perform an integrated system checkout of the Agena D production vehicle and certain selected optional and mission peculiar equipment. AGE requirements during this time period are based upon two separate considerations. First, AGE will be required to accommodate the vehicle changes approved as block changes to the previous configurations. Such changes will require both new and improvements or modifications to existing AGE. Secondly, new test procedures and programming for the automatic checkout equipment will be required. Test procedure changes are required as a result of vehicle changes, use of new or improved AGE and changes to existing procedures caused by improved testing techniques and requirements. Automatic checkout equipment programming changes will be required for each change of the test procedure as described by the test procedure changes enumerated above.
5. DEVELOPMENT TIME: Continuing Effort
6. COSTS: [REDACTED]
7. TOTAL COSTS: [REDACTED]
8. BUYER: Mr. E. S. Silberman
SSHDK
Ext 3911
9. PROJECT ENGINEER: Lt Col J. S. Plummer
SSHD
Ext 3911

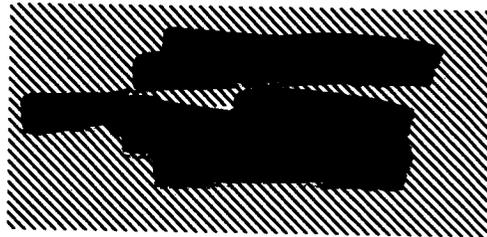
COORDINATION: Edward J. Plummer Lt Col
Deputy for Engineering, 648B

APPROVAL: [Signature]
Director, 648B

UNCLASSIFIED

~~SECRET~~

164



SPACE SYSTEMS DIVISION

UNITED STATES AIR FORCE

REIMBURSABLE FUND REQUIREMENT

FOR

648B - AGENA D

2 APRIL 1962

DOWNGRADED AT 12 YEAR INTERVALS
NOT AUTOMATICALLY DECLASSIFIED
DOD DIR 8300.12

~~SECRET~~

SSH-1

~~CONFIDENTIAL~~

FOREWORD

- 7-1-68
1. This document is submitted in conformance with AFSC direction to validate the FY-63 reimbursable funds required to provide Agena D's to support approved Space Systems Division requirements.
 2. Hq USAF has directed that the Agena D program be funded with reimbursable funds. The individual vehicle users will transfer program funds to replenish the reimbursable account upon Agena D delivery.
 3. Approval of this plan will provide for completion of the basic R&D and 12 vehicle buy plus a 39 vehicle follow-on procurement.

Approved by


HENRY H. KUCHEMAN, JR.
Colonel, USAF
Deputy for Agena

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

~~CONFIDENTIAL~~

UNCLASSIFIED

TABLE OF CONTENTS

Foreword	
Program Summary	1-1
Master Schedule	2-1
Financial Section	3-1

UNCLASSIFIED

449

UNCLASSIFIED

PROGRAM SUMMARY

1-1

UNCLASSIFIED

UNCLASSIFIED

PROGRAM SUMMARY

A. Authorization

1. The increased activity in space programs generated interest in feasibility of designing a standardized AGENA vehicle to perform the necessary ascent functions common to all space programs. On 30 June 1961 the AGENA standardization study was authorized. This study proved technical feasibility, and on 25 August 1961 LMSD was authorized to develop and manufacture twelve (12) "Standard AGENA" vehicles with a first launch programmed for January 1963.

2. On 17 October 1961 the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed a special committee chaired by Mr. Clarence L. Johnson to investigate ways and means of providing a more reliable AGENA on an accelerated schedule. This committee recommended acceleration, and on 7 November 1961 Dr. Charyk and General B. A. Schriever authorized go-ahead on the present accelerated schedules.

B. Program Objectives

1. The prime objectives of the accelerated AGENA D program are two-fold:

a. To produce a more reliable standardized basic vehicle capable of performing essential ascent and/or orbital functions derived from common mission requirements or all satellite system programs.

b. To provide a fixed-price procurement source for AGENA D vehicles.

2. To accomplish these prime objectives the Johnson committee basic ground rules have been implemented and govern the development of the AGENA D. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, inclosed area, and extraordinary program management channels.

C. Contracts

1. The basic (AF 04(695)-21) contract provides for delivery of 12 flight vehicles, plus one DTV with the first AGENA D launch scheduled for June 1962. This contract also provides for the necessary tooling to support a five-per-month production rate.

UNCLASSIFIED

UNCLASSIFIED

2. The follow-on (AF 04(695)-68) contract will provide production line units at a rate commensurate with consolidated space program requirements on a fixed-price basis.

D. Funding Guidance

1. Reimbursable funds will be used to fund the AGENA D program with program funds transferred to the reimbursable account upon AGENA D DD-250 delivery to the using program.

2. Hq USAF has directed that the R&D effort on the basic (AF 04(695)-21) contract will be amortized among the program users.

UNCLASSIFIED

UNCLASSIFIED

4J-3

MASTER SCHEDULE

UNCLASSIFIED

UNCLASSIFIED

455

FINANCIAL SECTION

UNCLASSIFIED

UNCLASSIFIED

FINANCIAL SECTION

1. The FY-63 reimbursable fund requirements are based on a procurement of 39 production AGENA D's on a delivery schedule as reflected on the master schedule Section 2-1. The long lead requirement of 21.880M is to provide for long lead procurement to satisfy Space System Division requirements for AGENA D's during FY-64.

2. The schedule for reimbursement of the reimbursable funds as shown on 3-3 indicates a break even point at the 35th Agena D (23rd production vehicle) for amortization of the R&D effort on the Agena D. From this point forward, the using programs will be charged the fixed price for an Agena D vehicle. The current estimate of this fixed price is 1.3M/vehicle.

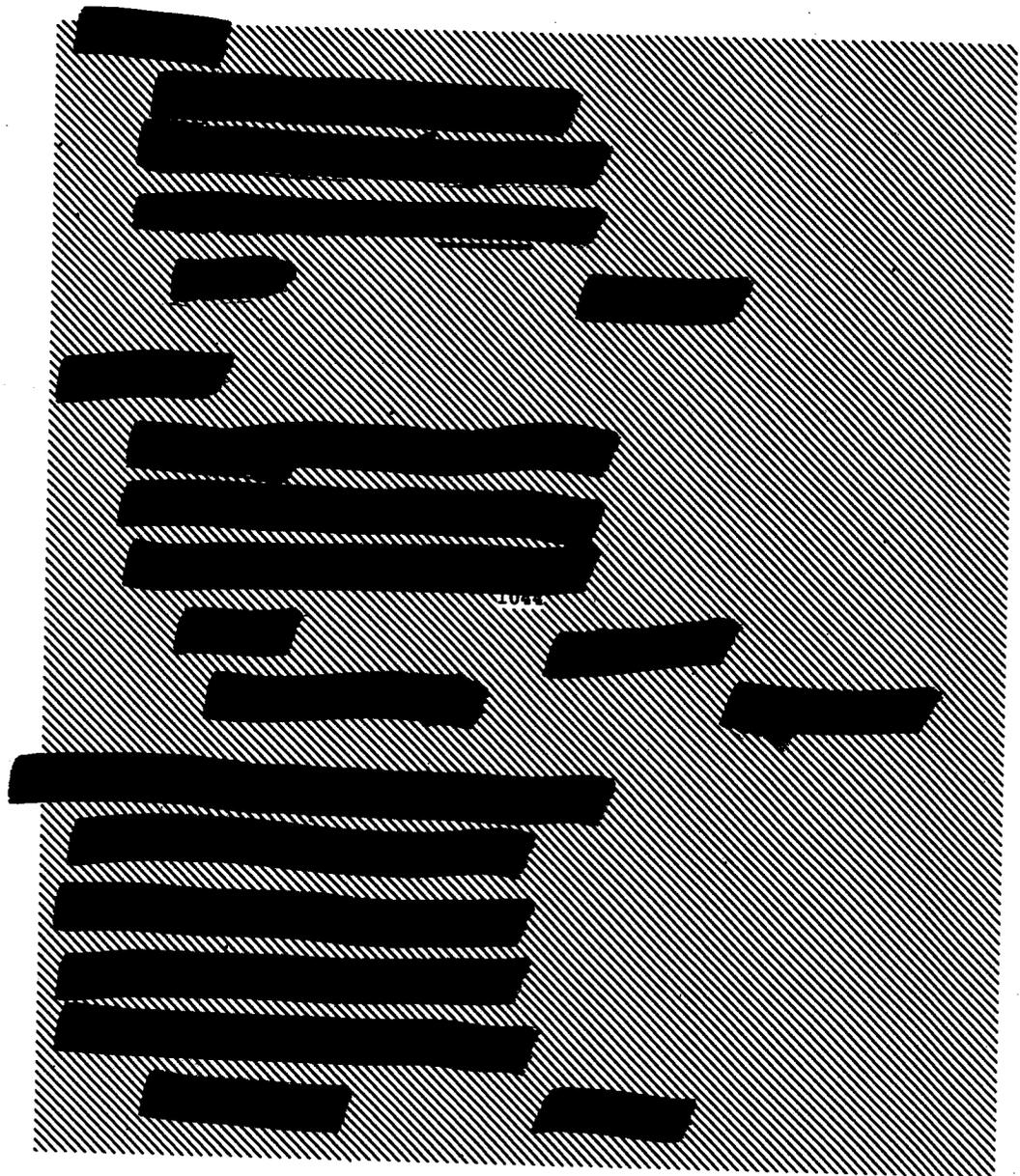
UNCLASSIFIED

~~SECRET~~

6399 REIMBURSABLE FUNDS



PRIOR YEARS



DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

~~SECRET~~

File # 165

2 APR 1962

Memorandum for Component Improvement Propulsion Advisory Committee

1000

1. Reference your recent request the following component improvement projects are submitted for the consideration of the Research and Development Propulsion Advisory Committee:

- a. H₂O₂ ASEMIA Rocket Engine
- b. Bi-Propellant Attitude Control System

2. The H₂O₂ ASEMIA Rocket Engine is considered a worthwhile advancement for an engine in this propulsion thrust class. The development was not considered favorably by the Program Budget Review Committee, SSD, because it was viewed as a major expenditure which could engender a complete redesign of the ASEMIA vehicle, not contemplated at this time.

3. The Bi-Propellant Attitude Control System was not presented to the PERD. The project represents an advancement in the state of the art and if adopted would replace any cold gas system in use today.

4. Both projects are presented herewith to the Propulsion Advisory Committee for consideration in their future deliberations.

SIGNED

HENRY B. KUDREMAN, JR.
Colonel, USAF
System Program Director
for Agena

1 Atch
Dupliant - Requirement for
Component Improvement

COVER PAGE CONTINUED

HK Rating A-2 Certified Under DMS Regulation No. 1

FCR No: HNSP-61-8-3

FR Nos: 62-SSD-188, 62-SSD-188-1, 62-SSD-188-2, 62-SSD-188-3, 63-SSD-188-4

Initiator of FRs: R. O. Kinder, LtCol, USAF/SELPI

Government Bill of Lading - Shipments will be made on Government Bills of Lading according to the clause of this contract entitled "Government Bill of Lading". The cognizant transportation office for this contract is Transportation Officer (SNBP), Sacramento Air Materiel Area, McClellan Air Force Base, California.

Inspection Notification - When ready for inspection, or, if practicable, 10 days in advance thereof, notify Chief of the CMR office, AF Contract Management district (office), AF plant representative office, or other office, as the case may be, to which the contract has been assigned for administration, unless otherwise informed.

This definitive contract supersedes Letter Contract AF 04(695)-21, dated 25 August 1961, and all Amendments thereto.

ADMINISTRATIVE COMMITMENT DOCUMENT

TO DCCA	Air Force Plant Representative Office	DATE	CONTRACTAL INSTRUMENT NUMBER
Administrative Office: P. O. Box 504, Sunnyvale, California	Lockheed Aircraft Corporation (Lockheed Missiles & Space Company)	5 April 62	AF 04(695)-21
			Contractor: Lockheed Aircraft Corporation (Lockheed Missiles & Space Company)

FR ITEM NO.	CONF. ITEM NO.	CONTRACT QUANTITY	FR OR MFR NUMBER AND ACCOUNTING CLASSIFICATION	UNIT PRICE	TOTAL COST
	1	12	<u>FR 62-88D-188 (Complete)</u> 57X3600 247-8106 F6399.9960 8594200 2500 <u>FR 62-88D-188-1 (Complete)</u> 57X3600 247-8106 F6399.9960 8594200/8992 2500 <u>FR 62-88D-188-2 (Complete)</u> 57X3600 247-8106 F6399.9960 8594200 2500 BLI B27 <u>FR 62-88D-188-3 (Complete)</u> 57X3600 247-8106 F6399.9960 8594200 2500 BLI B27 <u>FR 62-88D-188-4 (Partial)</u> 57X3600 247-8106 F6399.9960 8594200 BLI B27 TOTAL		
	2	All	<u>FR 62-88D-188-4 (Partial)</u> 57X3600 247-8106 F6399.9960 8594200 BLI B27		
	3	All	<u>FR 62-88D-188-4 (Partial)</u> 57X3600 247-8106 F6399.9960 8594200 BLI B27		
	4	All	<u>FR 62-88D-188-4 (Complete)</u> 57X3600 247-8106 F6399.9960 8594200 BLI B27 GRAND TOTAL		
			This document supersedes all previous ACDs Contract AF 04(695)-21.		

PREPARED BY (Typed name, org. code, telephone no., and signature)

Eugene S. Silberman/SSHDK/3911 RAD

The supplies and services to be obtained by this instrument are authorized by, and for the purpose set forth in, and are chargeable to allotments connected above, the available balance of which is sufficient to cover the amount in an amount not to exceed \$

DATE

SIGNATURE (Accounting Officer)

SCHEDULE

PART I - STATEMENT OF WORK

- Item 1 - Twelve (12) Agena D vehicles in accordance with Exhibit 648B-100, entitled "Statement of Work, Accelerated Agena D Program", dated 13 February 1962, incorporated herein by reference.
- Item 2 - Component improvement program in accordance with Exhibit 648B-101, entitled "Component Improvement Program, Contract AF 04(695)-21", dated 29 March 1962, incorporated herein by reference. The Contractor shall provide the services and material required under said Exhibit 648B-101 on a rate-of-effort basis as follows:

In-House Effort
(In Man-Months)

<u>1962</u>									
<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Total</u>
30.5	31.5	33.5	37.5	32.5	34.5	29	29	16	274

A tolerance of + 10% of the rate-of-effort is authorized provided, however, that the total effort for the contract period shall not be exceeded.

- Item 3 - Logistic support and spare parts in accordance with Exhibit 648B-102, entitled "Logistics Requirements", dated 1 February 1962, incorporated herein by reference.
- Item 4 - Agena D/Titan III adaptability study in accordance with said Exhibit 648B-100.

PART II - DELIVERY

- Item 1 - In accordance with said Exhibit 648B-100.
- Item 2 - In accordance with said Exhibit 648B-101.
- Item 3 - As necessary to provide timely support of the vehicles delivered under Item 1 above.
- Item 4 - Forthwith upon receipt by Contractor of a duly executed copy of this contract.

PART III - INSPECTION, ACCEPTANCE AND F.O.B. POINT

The place of final inspection, acceptance and f.o.b. point for Items 1 and 3 shall be at Contractor's Plant, Sunnyvale, California; and for Items 2 and 4 shall be at Headquarters, Space Systems Division (AFSC), Attn: SEND, Air Force Unit Post Office, Los Angeles 45, California. Item 3 shall be marked for: Central Logistic Storage Area, Agena D Spare Parts.

PART IV - COST

- A. The target cost for Items 1 and 3 is [REDACTED]
B. The estimated cost for Items 2 and 4 is [REDACTED]

PART V - FEE

- A. The target fee for Items 1 and 3 is [REDACTED]
B. The fixed fee for Items 2 and 4 is [REDACTED]

PART VI - TOTAL SUM ALLOTTED

The total sum presently available for payment, and allotted to this contract is [REDACTED] which covers all items and the estimated period of performance said funds will cover expires 30 May 1962.

PART VII - RELEASE OF NEWS INFORMATION

No news release, public announcement, denial or confirmation of same on any part of the subject matter of this contract or any phase of any program hereunder shall be made without the prior written approval of the Information Office, Office of the Deputy Commander for Aerospace Systems.

PART VIII - SECURITY REQUIREMENTS

Pursuant to paragraph 5.b of "Industrial Security Manual for Safeguarding Classified Information", the Contracting Officer may modify Contractor's responsibilities for security with respect to any work being performed hereunder within the confines of a military installation. Such modification shall be transmitted to the Contractor by the Contracting Officer by written notice pursuant to the clause of this contract entitled "Changes". If such modification results in an increase or decrease of security costs under this contract, an appropriate increase or decrease of the target cost and fee hereunder shall be negotiated and evidenced by a supplemental agreement to this contract.

PART IX - FACILITIES CONTRACTS

- A. As contemplated by paragraph (a) of Clause B.15 of General Provision 1.b, the Facilities Contracts are: AF 33(600)-37254, AF 04(647)-291, AF 33(600)-28587 and NOW 6108-4.
- B. As contemplated by said Clause B.15, the Subcontractors, Facilities Contracts and Subcontract Items are as follows:

<u>Subcontractor</u>	<u>Facilities Contract</u>	<u>Subcontract Item</u>
Aerojet-General Corp. Sacramento, Calif.	DA-04-495-ORD-1354 AF 33(038)-29926 AF 33(600)-37850 XCV 6144 U	Ullage Rockets
Aerojet-General Corp. Azusa, California	AF 33(038)-11378 NOWR (F) 2463 (00) NOW 6104 U	
Bell Aerosystems Corp.	AF 33(038)-41504 AF 33(038)-18896	Rocket Engines
Fairchild Camera & Inst. Corp. Defense Products Div. 300 Robbins Lane Lyasset, Long Island N.Y.	AF 33(600)-24973 AF 36(600)-4890	Programmer
Minneapolis Honeywell Corp. 2600 Ridgway Road Minneapolis, Minn.	AF 33(038)-23692	Inertial Reference Package

PART X - GOVERNMENT-FURNISHED PROPERTY

The Government will furnish to the Contractor for use in the performance of this contract the Government-furnished property listed in Exhibit 648B-103, entitled "Government-Furnished Property", dated 28 February 1962, incorporated herein by reference.

PART XI - USE OF GOVERNMENT FACILITIES

- 4 e 6
- A. The terms and conditions of this contract are based on the providing to the Contractor of certain facilities. These are identified as specifically as practicable in the Schedule; are of the estimated cost therein listed; and, as determined by the Contracting Officer, may be either furnished to the Contractor directly by the Government, or the Contractor may be authorized to acquire them at Government expense. The parties agree to enter into a separate facilities contract, or to amend an existing facilities contract, as the case may be, under mutually acceptable terms and conditions, at the earliest practicable date. The separate facilities contract, or the amendment to an existing facilities contract shall be in a form prescribed by the appropriate sections of the Air Force Procurement Instruction in effect on the date such facilities contract or amendment is executed. Such facilities shall be provided on a no-charge basis in accordance with the clause of this contract entitled: "Use of Government Facilities On a No-Charge Basis".
 - B. It is agreed that if such facilities are not provided at the time and to the extent provided in the Schedule, an equitable adjustment shall, upon timely written request of the Contractor, be made in the terms and conditions of this contract to the extent required by the failure to provide such facilities.
 - C. The facilities referenced in paragraph A above are machine tools, related production equipment, laboratory and testing equipment, furniture and equipment, portable tools and material handling equipment, and machinery and equipment installation costs, at an estimated cost of \$4,359,400.00.

PART XII - SEGREGATION OF COSTS AND REPORTS

The Contractor shall segregate all costs incurred in performing the effort required by Items 1, 2, 3 and 4. The Contractor shall maintain separate job orders and submit separate vouchers for the effort required by said Items in a manner and format as agreed by the Contractor and the Contracting Officer. The Contractor shall provide separate Financial Status Reports of Contract (DD Form 1097) required under this contract for each of said items.

PART XIII - RIGHTS IN DATA

The rights obtained by the Government in Subject Data are set forth in the Data clause incorporated in this contract, and nothing elsewhere in this contract or in any documents incorporated by reference in this contract shall be construed as in any way altering such rights.

ARTICLE XXIV - CONTRACT FUND INCORPORATION OF DDG

Contractor agrees to mark the number of this contract on all data delivered hereunder.

ARTICLE XXV - APPLICABLE INCORPORATION OF PARTICULAR CODE ITEMS

The provisions of AFMR 15-205.1 and 15-205.33 are applicable to reimbursement made or to be made from funds appropriated by the DDG Appropriation Act of 1962 and any other funds hereafter obligated under this contract regardless of the year in which appropriated.

ARTICLE XXVI - INCORPORATION OF "INDIVIDUALLY HAZARDOUS ITEMS" CLAUSES

In the event that during the life of this contract there is an "Indemnification for Unusually Hazardous Risks" clause approved for use in this contract, said clause will be incorporated herein upon request of either party hereto.

ARTICLE XXVII - OVERHEAD RATES

The first overhead period referred to in Clause B.14 of General Provision I.b shall extend from 25 August 1961 to 31 December 1961; subsequent periods shall be in accordance with the ending date of Contractor's fiscal year. Pending establishment of final overhead rates for any period, the Contractor shall be reimbursed at billing rates acceptable to the Contracting Officer, or his duly authorized representative.

GENERAL PROVISIONS

1. Incorporation of Basic Agreement

- a. All of the Clauses of Sections A and D of Basic Agreement No. AF 33(657)-5032, dated 10 January 1962, are incorporated herein by reference and shall apply in the performance of this contract.
- b. The following Clauses of Section B of the above-mentioned basic agreement are incorporated herein by reference and shall apply in the performance of this contract, except as modified by paragraph c. below:
- B.2 Patent Rights
 - B.4 Data
 - B.6 Authorization and Consent
 - B.11 Ammunition and Explosive Material Safety
 - B.12 Changes to Make or Buy Program (The referenced make or buy program is set forth in Exhibit 662A-104, entitled "Make or Buy Exhibit", dated 25 October 1961, incorporated herein by reference)
 - B.13 Safety and Accident Prevention
 - B.14 Negotiated Overhead Rates
 - B.15 Use of Government Facilities on a No-Charge Basis
 - B.17 Notice of Radioactive Materials
 - B.22 Allowable Cost, Incentive Fee, and Payment (Applicable to Items 1 and 3 only)
 - B.25 Limitation of Government's Obligation
 - B.26 Defense Subcontracting Small Business and Labor Surplus Area Program
 - B.28 Material Inspection and Receiving Report
 - B.30 Stop Work Order
- c. Clause B.22 - Allowable Cost, Incentive Fee, and Payment - is amended by deleting paragraph (1) and substituting the following in lieu thereof:

"(1) The fee payable hereunder for Items 1 and 3 only shall be in accordance with the fee formula set forth in Exhibit "A", attached hereto and made a part hereof. In no event shall the fee be greater than 9%, nor less than 5%, of the target cost; and within these limits such fee shall be subject to adjustment, by reason of increase or decrease of total allowable cost for Items 1 and 3 on account of payments under the assignment required by (f)(1) above, and claims excepted from the release required by (f)(ii) above."

2. Prior Instruments Superseded

This is the definitive contract contemplated by Letter Contract, dated 25 August 1961, and designated Contract AF 04(695)-21 and supersedes said Letter Contract and all Amendments thereto. Any costs incurred or payments made thereunder will be considered to have been made under this definitive contract.

3. Approval of Contract

This contract shall be subject to the written approval of the Secretary or his duly authorized representative and shall not be binding until so approved.

EXHIBIT "A" TO
CONTRACT AF 04(695)-21

INCENTIVE FEE FORMULA

I. GENERAL

A. The purpose of this Exhibit is to state the target cost, cost sharing limits, maximum and minimum fee within the cost sharing limits and the incentive adjustment formula as negotiated under cost-plus-incentive-fee contract AF 04(695)-21. The Contractor's areas of performance which will be measured for incentive application under this contract are:

1. Cost
2. Delivery
3. Performance

II. INCENTIVE FEE LIMITS

A. The target cost, target fee, and target price for Items 1 and 3 are:

Target Cost

Target Fee 7-2/3%

Target Price



- B. The incentive fee based on the cost incentive formula is limited to a maximum increase or decrease adjustment of 2/3% of the target cost to the target fee.
- C. The incentive fee based upon the delivery incentive formula is limited to a maximum decrease of 1-1/3% of target cost to target fee.
- D. The incentive fee based upon the performance incentive formula is limited to a maximum increase or decrease adjustment equal to 2/3% of target cost to the target fee.
- E. The total incentive is limited to the specific areas of the Contractor's performance as follows:

NOTE: This Exhibit
consists of 3 pages

Cost Incentive $\pm 2/3\%$ of target cost

Delivery Penalty - $1-1/3\%$ of target cost

Performance Incentive $\pm 2/3\%$ of target cost

Total maximum increase to target fee + $1-1/3\%$ of target cost

Total maximum decrease to target fee - $2-2/3\%$ of target cost

Fee ceiling equal to 9% of target cost

Fee floor equal to 5% of target cost

III. COST INCENTIVE

- A. The specific amount of incentive fee applicable to the cost incentive which will be either an increase or decrease to the target fee will be determined on the basis of a cost sharing ceiling of 115% of the target cost and a cost sharing floor of 85% of the target cost.
- B. The amount of incentive fee applicable to the cost incentive shall be computed as follows:

<u>Increment of cost reduction or cost overrun</u>	<u>Contractor's percent participation in cost reduction or cost overrun</u>
1st 5% increase or decrease in target cost	2%
2nd 5% increase or decrease in target cost	4%
<u>3rd 5% increase or decrease in target cost</u>	7.34%

Total 15%

IV. DELIVERY PENALTY

- A. The specific penalty fee applicable to the Contractor's inability to meet the required delivery schedule is equal to $1-1/3\%$ of target cost. The maximum reduction to target fee for one delinquent item shall be equal to 1111% of the target cost, or a maximum reduction to target fee equal to $1-1/3\%$ of target cost for 100% delinquency.
- B. The Contractor shall deliver Agena D vehicles as required by the contract schedule. If the Contractor fails to meet a delivery schedule, the Contractor's profit (fee) shall be reduced as follows for each delinquent vehicle:

<u>For each vehicle</u>	<u>Period delinquent</u>	<u>Total</u> <u>Amount of Penalty</u>
delinquent 15 days but not more than 21 days		.0222% of target cost
22 " " " " "	28 "	.0444% " " "
29 " " " " "	35 "	.0666% " " "
36 " " " " "	42 "	.0888% " " "
43 days or more		.1111% " " "

The penalties outlined are not cumulative. The maximum penalty for any delinquent vehicle is .1111% of target cost.

V. PERFORMANCE

- A. The specific incentive fee applicable to the Contractor's performance incentive is a total increase or decrease in the target fee equal to 2/3% of the target cost, computed as follows:
1. An Air Force board shall be appointed to rate the Contractor's performance. This board will submit its recommendations to the Contracting Officer, within thirty (30) days after the launch of the last vehicle produced under this contract.
 2. The board will use the following criteria to rate the Contractor's performance under this contract:
 - a. Group I Criteria - Weighted 50%
 - (1) Reliability
 - (2) Program adaptability
 - (3) Ease of checkout
 - b. Group II Criteria - Weighted 50%
 - (1) Weight of vehicle
 - (2) Ascent performance
 3. A total of evaluation points, from 0 to 60 shall be used, with the target established at 30 points.

167

SSV

Atlas Launches at AMR and PMR

DCG (LtGen Estes)

1. With reference to your letter of 19 Mar 62, I have appointed a Space Launch Survey Team consisting of representatives from the Deputy for Launch Vehicles, Agena Program Directorate, the SSD Test Planning Office, the 4595th and 6555th Aerospace Test Wings, and the Aerospace Corporation. In addition, I have requested a representative from General Dynamics/Astronautics at San Diego, California, and from Lockheed Missiles and Space Company at Sunnyvale, California to assist the Space Launch Survey Team.

2. It is planned that the Space Launch Survey Team will depart 1 Apr for AMR and will then proceed to PMR to look into the following:

- a. The organizational arrangements and contractor relationships that relate to Atlas/Agena space launches.
- b. The sequence of events that take place from the time the launch vehicle arrives at the launch site until it is launched, to include the Atlas and Agena checkout procedures and test philosophy.
- c. The type of range support provided at each location.
- d. The type of checkout and launch hardware at each location.

3. After the Survey Team complete their investigations at the launch sites they will return to this complex to analyze and evaluate their findings. I plan on providing you a report of their investigation by the end of April.

SIGNED

O. J. RITLAND
MAJOR GENERAL, USAF
COMMANDER

1 Atch
Cy ltr fr Gen Estes to C...
Ritland, 19 Mar 62, same subj.

Report dtd May 1962

164

HEADQUARTERS
OFFICE OF THE DEPUTY COMMANDER AFSC
FOR AEROSPACE SYSTEMS
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REPLY TO
ATTN OF:

DCL

19 MAR 1962

SUBJECT: Atlas Launches at AMR and PMR

TO: Major General O. J. Ritland
Commander, Space Systems Division (AFSC)
AF Unit Post Office
Los Angeles 45, California

Dear Ossie

1. One of the major points made by your Launch Analysis Task Force in a recent briefing to me was the impact on pad time and costs attributable to lack of standardization of equipment and procedures. Lack of standardization is conducive not only to excessive costs, but also tends to affect the success of the launching.
2. It appears to me that differences in hardware, procedures and organizational arrangements that relate to Atlas launchings at AMR and PMR may be affecting significantly the degree of success of launchings at these two locations. In fact, some recent data which I have examined indicates a slightly greater percentage of successful launchings at AMR than at PMR. In this event, it would appear desirable to achieve, to the extent feasible, a standard way of "doing business" which would be common to the two locations and which would employ the best features of the two current systems of operation.
3. In view of the above, it is requested that you arrange for a comprehensive analysis and evaluation of this area with the following objectives in mind:
 - a. To review all of the elements, including hardware, procedures and organization, involved in the launch process at AMR and PMR for the purpose of determining significant differences between the two organizations.

b. To analyze and evaluate these differences for the purpose of identifying those for which one of the alternate ways appears to be preferential in terms of the probability of success of the mission:

c. To determine on the basis of this analysis and evaluation whether or not these differences should in any way contribute to a higher level of success or reliability at either one or the other of the two launch sites. (Effects of differences of national range facilities of AMR and PMR should be taken into account in this connection.)

d. To prepare recommendations regarding any standardization between the launch sites in terms of equipment, procedures, etc. which, on a cost/effectiveness basis might appear warranted toward the objective of higher reliability levels and further to prepare recommendations as to any additions in equipment or changes in procedure at the national ranges which would serve these same ends.

4. For some time, a launch analysis task force has been in session to examine means of reducing launch cost and launch pad time. It is possible that the investigations mentioned above might be undertaken as an additional task by this group. In any event, it is of vital importance that whatever group conducts the investigation be so organized as to conduct those efforts in an atmosphere of maximum objectivity. It is requested that you inform me by return memorandum of the general plan of action which you contemplate and the approximate date at which a meaningful study may be completed.

Sincerely,

~~HOWELL M. ESTES, JR.~~
HOWELL M. ESTES, JR.
Lieutenant General, USAF
Deputy Commander for Aerospace
Systems

signature & reference 169

MEMORANDUM FOR DIRECTOR

25 April 1952

SUBJECT: Agent D Configuration

1. On 16 Apr 52 WSC offered the first Agent D to the Air Force for acceptance. During the course of review, from 7 Apr 52 to 16 Apr 52, it was necessary to "revolve" the Agent D structure as delivered. Although the Air Force formally accepted AD-1, with certain deviations delineated on the DD-250 document, it was my personal conviction as Design Director that we had not fully attained the objective of a standard vehicle at this point in the development process. Further, that with the planning time far accomplished by the WSC Office, we would not very likely attain this goal prior to the delivery of AD-9. I do not feel that this is either necessary or desirable.

2. Accordingly, this date, I formally requested Mr. O'Green, WSC Program Director, to request his staff to evaluate their current planning in light of my official request, to move up the standard configuration delivery date to AD-6 or earlier. Specifically, I desired to avoid the necessity for any further structural changes under the (-21) contract after the introduction of the following items:

- a. Redesign Forward Equipment Rack.
- b. Redesign Aft Equipment Rack.
- c. Type V Telemetry Vehicle.
- d. Mark X Inverter.

Mr O'Green officially accepted my request to undertake the re-evaluation and requested an opportunity to discuss the problem with his staff.

EMERY B. MICHMAN, JR
Colonel, USAF
Director, Program 6483
AF Agent D Office

4125/62
169

REF ID: A66333

Subject: LOCKHEED-AIR FORCE MEMO ON AGENA D OPERATIONAL PLAN

Members of AFSSD met with members of LMSC staff on 20 April 1962 in Sunnyvale to discuss the Agena D Operational Plan.

Those in attendance were:

AFSSD

- Maj. Gen. O. J. Ritland
- Colonel H. E. Evans
- Colonel H. B. Kueheman, Jr.
- Lt. Col. E. F. Blum

LMSC

- W. M. Hawkins
- R. R. Kearton
- D. J. Gribbon
- T. W. O'Green
- J. W. Plummer
- R. D. King

LMSC presented the briefing as to the comparison of various approaches of carrying out the testing aspects of Agena D from manufacturing to launch. This included comparisons with existing "B" methods and various combinations of Building 104/152 testing, as appropriate.

The briefing charts used are attached. These charts include the data presented for discussion, in addition to the LMSC conclusions and recommendations as shown on the final two charts.

Considerable discussion took place on many of the points presented. None of the points made in the briefing charts, as shown here, were considered to be invalid or in question after an explanation, and the Air Force accepted the Lockheed position including the recommendations and conclusions shown. Colonel Evans stated clearly that although considerable effort was being expended in exploring the way in which production flow from manufacturing to launch could be optimized, it was in no way to be construed that the Air Force intended to change the Agena D basic approach as it now exists for the initial production effort. Stated simply, this means Agena Ds are to be manufactured in a standard configuration, checked out, and sold by DD-250 to the Government for storage or use. The effort required to peculiarize an Agena D through either a Lockheed existent program or booster program use would be carried out after completion of the Building 152 DD-250 in Building 104 or at a test base and preferably on a contract other than Agena D.

General Ritland expressed concern over the fact that carrying out this approach required certain duplication of work. This refers to the fact that it is necessary to include two installation spans and two checkout spans when Agena D is produced as a standard vehicle and then modified and checked again to the booster or program configuration. Although LMSC has recognized this fact since the beginning of the program and has pointed it out to the Air Force, General Ritland stated that the extra costs incurred as a result of this effort, in spite of the present or potential savings of the Agena D Program, was not easy to sell to either the secretary level of the Air Force or the CIO. He did agree that the GAO aspect of this could be explained.

170

25 April 1962

General B. A. Schriever
Commander
Air Force Systems Command
Andrews Air Force Base
Washington 25, D. C.

Dear Ben

Attached hereto is a second review of the Agena D program as accomplished by Kelly Johnson and myself on the 19th of April. I believe the report is self-explanatory.

With regard to the recommendations, I have already taken action. Specifically:

(1) I have asked the contractor to present a definitive plan for managing the follow-on production phase under the -68 contract. This will include identification of all key personnel that would be associated with the program.

(2) It is my opinion that the follow-on Agena D effort should fall between the management approach for the first twelve and the standardized Air Force contractor relationship under normal production programs. I am certain that if we make too many deviations from the successful program we now have to a CI production program, costs, schedule, and reliability will suffer.

(3) The configuration control problem is a very difficult one but must be clearly established and defined in the follow-on program as eventually established under paragraph 2 above.

(4) It was imperative that the -21 contract with Lockheed be approved by Hq USAF before 30 April 1962. Otherwise, the contract would have had

OFFICE SYMBOL	ORIGINATOR				
ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED					
EXCEPT WHERE SHOWN OTHERWISE					
ON COMPLETION OF PROGRAM					

to be re-opened since 60% of the program dollars would have been expended on a letter contract at that time. Through extraordinary effort, Colonel Kucheman and Mr. Silberman walked the contract through the Pentagon and it has now been signed by Mr. Imirie. We now have a CPIF definitive Phase I contract with Lockheed.

479

(5) I have sent Colonel Battle to Lockheed to satisfy himself that the transition from the standard Agena D to the final version for his program, including optional and peculiar equipment, is under control. At the same time, I emphasized to Colonel Evans and Colonel Battle that they must meet the June 28th launch date plus the Agena D launch schedule which follows. It is my opinion that the final proof of the Agena D effort will be shown through Colonel Battle's program.

The R&D effort so far on the Agena D is certainly an outstanding accomplishment. As of this moment, eight (8) months have been cut off the original schedule, the hardware is clean, costs to date are in accordance with the contract schedule, and the checkout time appears to be reduced. If it is possible, I would encourage you to spend a few hours at Lockheed to view this progress.

Sincerely

SIGNED

O. J. RITLAND
Major General, USAF
Commander

1 Atch
Ltr, 25 Apr 62, to Comdr AFSC,
Rpt of 2d Review of Agena D Pgm,
Orig and lcc (SSG-88)

Copy to: General Estes
Colonel Kucheman

OFFICE SYMBOL	ORIGINATOR				
NAME (SIGNATURE)					
DATE					

CONFIDENTIAL

25 April 1962

081
General B. A. Schriever
Commander
Air Force Systems Command
Andrews Air Force Base
Washington 25, D. C.

Dear General Schriever

Reference: a. Letter dated 27 Feb 62 to General Schriever from Major General O. J. Ritland and Mr. Clarence L. Johnson, re first review of Agena D program.

b. TWX, SCGN 7-3-12 dated 7 Mar 62 for SSG, General Ritland, Info to Mr. C. L. Johnson.

On 19 April 1962, Major General O. J. Ritland and Clarence L. Johnson visited the Lockheed Missiles and Space Company at Sunnyvale, California, as per your directive, to make a second review of the status of the Agena D program. The following comments apply to our investigation made on that day.

1. The project operation is running very smoothly, with excellent relationships between the Air Force and the Contractor. It was stated by several key individuals that their relationships on this project were the best of any they had encountered.

2. Morale on the project is good.

3. The cost control methods, which are similar to those used by Mr. Johnson in the past, appear to be working well, as the project costs are tracking nicely within the expected dollar expenditures which have been set up contractually.

4. The first Agena D has been accepted by the Air Force on schedule. Excellent cooperation was demonstrated by the Contractor and the Air Force in inspecting the bird and correcting deficiencies found. While all equipment elements in this unit have not passed their formalized qualification tests, this will have been accomplished prior to the launch

**THIS DOCUMENT BECOMES UNCLASSIFIED
UPON COMPLETION OF PROGRAM**

CONFIDENTIAL

SSG-88

~~CONFIDENTIAL~~

date and, in general, these equipment items have passed their tests but the formal reports have not been written.

5. The recommendations made in the referenced letter have been carried out well. On our last trip, we were not given the proper information on the fuel tank redesign regarding skin thickness and tolerance margins. This situation was clarified, and we now have no differences with the Contractor regarding the fuel tank redesign on the Agena D.

6. Recommendation #6 of the referenced letter cannot be complied with, in spite of a good effort by the Contractor to do so. There will be a strength improvement on the 9th Agena D by making use of the access panels to the equipment as structural load-carrying members. This condition came about by increased load requirements for several packages, primarily 621-A and 483-A. There is no structural deficiency on the first eight units for Colonel Battle's projects.

MAJOR PROBLEMS:

The major problems encountered during our study were the following:

1. While the agreed fifteen (15) operating points have been scrupulously observed by both parties for the design and construction of the first twelve (12) Agena D's to this date, there seems to be a definite plan afoot to change these operating procedures to the normal type of industry-Air Force operation on the follow-on contract for thirty-nine (39) units. An error or a lack of understanding in drawing procedures on the first twelve (12) units has led to a complete redrawing program now going forward at the Lockheed-California Company, taking the 350 drawings used to build the first twelve (12) birds and converting them to 1300 drawings for the follow-on contract. The major cause of the redrawing is the fact that the initial drawings did not completely define a given part on one drawing, it being necessary to have several different drawings in order to get all the information required to build a part. This is certainly an untenable situation but, in our view, it could have been corrected much more simply than by a complete redrawing program, involving a cost of some \$350,000. We were told that the usual configuration control would be re-instituted, but that the processes and procedures developed for the first twelve (12) birds, as well as the specifications for detail parts, would be maintained. We fear that a change of management will be made at the same time, with an attendant

CONFIDENTIAL

CONFIDENTIAL

loss of top level experience, which always results in higher costs, delays, and various other types of major problems.

2. We are concerned that, while the first standard Agena D has been completed on schedule, there have not been sufficient preparations made in building #104 for the incorporation of peculiar and optional equipment and for checkout and launch. We encountered a much lower level of drive and understanding of the problem in the checkout area than was demonstrated in the first part of the program, under Mr. Fred O'Green. We were given conflicting data as to when the checkout area would be ready and what schedule would be obtained for shipment to the launch area. These problems were discussed with Messrs. Hawkins, Kearton, and O'Green, and Colonel Kucheman.

3. While many improvements have been made and good action has been taken to improve the reliability of the equipment items, there is some question on the accuracy of the data shown us regarding the hydraulic system and the inverter. These items were discussed in detail with those directly connected with the project.

RECOMMENDATIONS:

1. Contractor should present alternative plans on how the follow-on group of Agena D's is to be constructed and, specifically, what people will manage what parts of the program. It is hard to see that a system which will apparently reach a production rate of four (4) birds per month needs to be completely revised to go to five (5).

2. Clarification is needed as to the Air Force position on whether or not the original fifteen (15) rules used to develop the first twelve (12) Agena D's are to be continued into the production phases for more birds. This was the understanding of the writers, but apparently instructions have gone out through normal Air Force channels negating this approach.

3. The configuration control problem continues to be a nasty one but it can be obtained, no doubt, within the management structure currently existing by delegation of substantially more power to Colonel Kucheman.

4. While there has been no time when funding has not been in advance of requirements, it has been on a marginal basis and, if this

CONFIDENTIAL

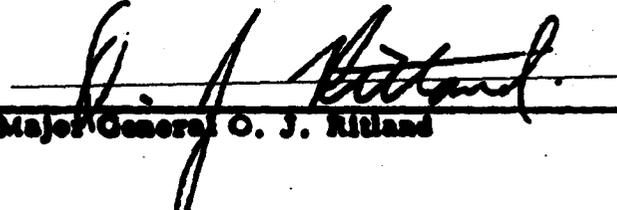
continues in the future, it may prevent the Contractor from placing orders for equipment and materials in an expeditious manner.

5. LMSC must provide better supervision and direction to the program when the birds are transferred from the cognizance of one of their internal groups to another, to avoid the loss of valuable time.

6. The Contractor, the Project Officer, and the AFPR are to be commended for their performance to this point, which indicates that the program is on schedule, the first bird is fifty (50) pounds underweight, and the costs are well in hand. Checkout times for AD-1, as a prototype, are running from 1/2 to 1/3 those of the current Agena B's; so, obviously, a marked improvement has been made in the design of the bird.

7. A complete schedule and plan for a launch of AD-1 on 28 June should be prepared immediately and executed.

Sincerely


Major General O. J. Ritland


Clarence L. Johnson

171

APR 27 1962

ASH

Attendance at Mockup, CSCI and DEI Boards

ASB

1. In reply to your letter of 13 April 1962, subject as above, ASB (ASB) has the following comments to provide regarding SSI (ASB) (ASB) Agency experiences in the area of Mockup CSCI and DEI Boards.
2. In early 1959 it was originally planned to have a formal complete mockup inspection of the W3117L system. A proposal by LMSC set the figure at 3 million dollars for this inspection. Although this figure could have been reduced, plans were dropped for any formal mockup.
3. There have never been any classical mockup CSCI or DEI functions connected with the Agency program. In their place have been substituted three general proceedings and their composition and formality have varied from time to time.
 - a. Technical Direction Meetings: There are small meetings concerned with a single sub-system (for example, guidance and control) held about every six weeks to review current engineering, tests, future plans, failed equipment reports, and problem areas. These meetings involve about two-three SCD cognizant engineers and approximately ten LMSC engineers who are not necessarily present during the entire meeting. Informal letter items are kept which may later become the subject of official correspondence.
 - b. Design or Configuration Reviews: These may be on a new system, piece of equipment, or on a new model vehicle. Again there are small meetings involving six-seven SCD engineers and ten to twenty LMSC engineers, depending on the scope of the subject. Depending upon the subject, the discussion may be purely informative or it may involve compromise or redirection of effort.
 - c. Acceptance Meetings: These are held at DD 250 sign-off and involve SCD subsystem and program office engineers, the AFTR representatives and their LMSC counterparts. In the event the program is supported by Aerospace, their engineers are also present. SCD attendance runs approximately six-eight, Aerospace two-five, AFTR one-two, and LMSC twenty-fourty. Log books are examined and informal questions are posed during the morning session. In the afternoon period, a formal meeting is held and all aspects of the vehicle are examined to determine the acceptance status of the vehicles. The results are entries to the DD 250 and engineering depositions to be submitted by LMSC on a prearranged date to the program office.

In all of the above meetings, approximately 100 Air Force personnel participate so good emphasis is provided to assure that action is carried out or applied to other comparable DDC programs.

4. The Agena D meeting approached more closely the standard concept of a meeting inspection. This was necessitated by the policy of allowing only six Air Force personnel access to the development area, as well as only those DDC personnel directly concerned with the program. A food and metal meeting was provided as well as copies of the briefing charts. Each subsystem was formally presented. All using and potential using programs, including NASA, were invited to attend. The usual formal presentation was followed by a question and answer session.

5. In conclusion, it should be noted that the country fair atmosphere of the meeting and CTOI inspections of the aircraft era when all who came were experts on cockpit and maintenance aspects, has reverted to a rather close knit group who are directly associated and cognizant of the program objectives. This change has developed due to the still experimental nature of space projects and the limited blue suit operations associated with them.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
System Program Director for Agena

SSHA

Lt Col Smith/V4
26Apr62

30 APR 1962

172

MEMO

MEMO (Agenda B) Objectives for FY 63

MEMO (Col Berg)

1. In reply to your letter dated 10 April 62 requesting the objectives of the Agenda B program for FY 63, I am happy to provide a list of what we in the Agenda Directorate feel should be accomplished.

- a. Establish an annual line item in the budget.
- b. Establish an S&D policy requiring all Agenda B using program offices to submit vehicle modifications through the Agenda Directorate to better maintain a standard, versatile Agenda vehicle.
- c. With the accomplishment of (a) above, establish a robust product improvement effort to improve reliability, mission adaptability, serviceability, and productivity of the production Agenda B.
- d. Exploit to the greatest degree possible the use of available automatic checkout equipment to produce the basic Agenda D on a production line schedule.
- e. Study and plan for standardization of existing and future Agenda Aerospace Ground Equipment at all sites.
- f. In conjunction with (b) above, establish the rudiments of a system for configuration control to include detailed specifications and other baseline material.

2. It is recognized that many of these items are quite minor when compared to those of a major program. Therefore, if the list is to be culled, it is recommended that items (a) and (c) be considered the most important.

SIGNED

HENRY B. KUCHMAN, JR.
Colonel, USAF
System Program Director for Agenda

MSOL	ORIGINATOR SSBA				
SIGNATURE	Lt Col Smith/12				
	21 April 1962				



487

1. Contract AF 64(695)-65 is for production of Agena D satellite vehicles, and spare parts, and special equipment. The estimated dollar value of the program for FY-66 is \$70,000,000. It is contemplated that this contract will be of the FPR type when definitized. The contractor will require the use of existing government furnished industrial facilities. It is the opinion of the Procuring Contracting Officer that this program is applicable to 'make or buy' as contemplated by the referenced AFPI Supplement No. 2.

2. It is requested that a Make or Buy Review Board be established by the Chief, Procurement and Production Office, to review the contractor's 'make or buy' program.

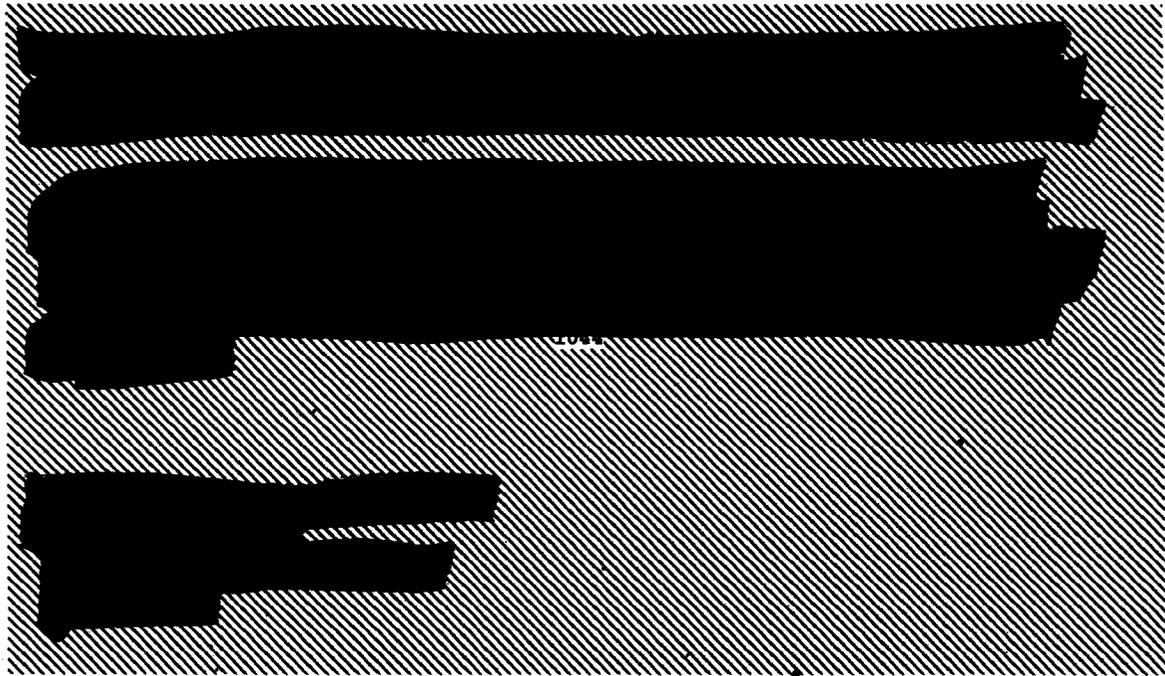
3. Action to reach agreement on the 'make or buy' exhibit is urgent in order to definitize a delinquent letter contract. In the event your office cannot designate a board at an early date, request advice to that effect and some other arrangements will be made to comply with regulations with regard to 'make or buy'.

SIGNED

EUGENE S. SILBERMAN
Procuring Contracting Officer
Program 648B

114

[REDACTED]



175

SSHD

MAY 14 1962

Agema D Optional Equipment

Lockheed Missiles & Space Company
Attn: Mr. F. W. O'Green
Department 68-01
P. O. Box 504
Sunnyvale, California

1. It is the intent of this letter to clarify the policy regarding Agema D procurement of Optional Equipment. As firm requirements are established by using program offices, authority to procure these items will be provided by way of the follow-on -68 contract, to enable LMSC to take advantage of lot procurement whenever possible.
2. Attached is a list of Agema D optionals to be procured by the Agema D office. This list includes estimated lead-time and costs as provided by your program office.
3. In order to establish stability in this procurement activity, it is requested that no change be made to the attached list without prior notification of the Air Force Program Director.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
System Program Director
for Agema

1 Atch
Agema D Optionals to
be Procured by SSHD

Major Hegerle/dc

176

MAY 14 1962

SSHD

Underfunded Contracts

SSCM (LtCol Warren)

1. Reference SSCM letter, same subject, dated 10 May 1962.
2. The 648B Program is presently funded under two contracts. The -21 contract is the basic definitized contract and the -68 contract is the follow-on letter contract. Both contracts are identified on Attachment 2 of the referenced document as being underfunded and will be explained separately.
 - a. The basic -21 contract is reported as underfunded by \$50,000 in November 1961.
 - a. The -21 letter contract was issued in August 1961 with original funding obtained from Programs 660A, 621A, and 698A. The contract was adequately funded by utilizing program funds until mid-November 1961.
 - b. Subsequent to mid-November, the Agena D program was placed on an accelerated schedule in conformance with instructions received from the Office of the Secretary of the Air Force and Hq USAF. Since that date, there have been two occasions wherein the contractor's commitments approached the Air Force obligations. A personal contact between the Program Director and the Lockheed Agena D Program Office, this date, confirmed our recollection that at no time has the contractor's commitments exceed Air Force obligations. The two occasions wherein the contractor's commitments approached monies on-contract were due to:
 - (1) In the first instance, failure of Hq USAF to issue a covering B/A in sufficient time to place the monies on contract any sooner.
 - (2) In the second instance, an administrative ruling by SSK which prohibited SSHD from obligating more than 60% of appropriated funds while on a letter contract.

493
D

On both occasions, however, we were able to apply the necessary funds to the contract prior to the fund exhaustion date. At the present time, 28.6M have been obligated which should fund the -21 contract through 24 May. A Purchase Request is being hand-carried through channels which will place an additional 2.1M on contract and extend the fund exhaustion date until approximately 10 June.

c. On 30 Apr 1962, the signed definitized -21 contract was delivered to LMSC and funds initiated to fund the contractor through FY-62. These funds have not been committed due to Hq USAF re-direction of funding policy. The most recent instructions received from Hq USAF have been relayed to Colonel Wogan, your office. These instructions have the effect of removing the funding flexibility from the Program Office at this time. Until further funding guidance and authorization are received from Hq AFSC, there is nothing that the Program Office can do toward relieving a potential underfunding situation, let alone fund on a quarterly basis.

d. The follow-on -63 contract is reported as underfunded by \$52,000 in December 1961.



5. Reference is made to Paragraph 1.a. of Hq ESD letter subject, "Presentation by Colonel Phillips on Underfunding on Contracts," dated 7 May 1962. The policy reiterated by General Greer is well known to the undersigned and has been scrupulously followed. With the administrative delays induced by higher echelons of command and by incremental fund techniques, only by effort far

494
beyond what would normally be expected has it been possible to adhere to this policy or to the program ground rules of the accelerated Agena D. Both LMSC and the Air Force officially recognize that to date we have accomplished the program objective of 'timely funding' and I would like to enjoin your continued support to insure that we complete the contract without the necessity of blemishing this record.

SIGNED

HENRY B. KUCHEMAN, JR.
Colonel, USAF
Systems Program Director
for Agena

177

13 May 1962

MEMORANDUM FOR RECORD

SUBJECT: Modernization of Industrial Facilities Bell Aerosystems Company

1. On this date, a conference was conducted to determine the necessary and proper action to be taken to allocate funds to Bell Aerosystems Company for the modernization of data acquisition and reduction facilities used in the production and test of Agena D rocket engine XLR91-BA-9 (Bell Model 8096). In attendance were:

Colonel Henry E. Kucheman, Jr.
System Program Director for Agena (SSP)

Colonel Joseph L. Campbell
Director of Civil Engineering (ESN)

Colonel Joseph O. Wogen
SSD Comptroller (SSC)

LtCol Robert K. LeBeck
Chief, Astro Vehicle Division - Agena - (SSHAA)

It was concluded that the objectives of the modernization program were in conformance with DOD policy and would ultimately result in a savings to the Air Force. Additionally it was established that the project could be funded from moneys under the control of the SSD Comptroller, Colonel Wogen. Both Colonel Kucheman and Colonel Campbell agreed that the project should be approved provided Hq AFSC/USAF approved Colonel Wogen's method of funding.

2. For the record, Colonel Kucheman explained that from the long term point of view, the overall benefit to be derived from the modernization of these facilities and the impact on the overall Agena program were to the best interests of the Air Force and should be pursued. The information received from LMSC on 15 May 62, see attached Memorandum for Record, same subject dated 15 May 62, was furnished to Colonel Campbell and Colonel Wogen. Additionally, it was pointed out that in

986
the preparation of the Facility Annex for the Agena D Program Plan, no moneys were provisioned to fund any sub-contractors of LMSC for any purpose. In recognition of this fact, it was stated that no moneys had been provided to the Agena D Program office which were originally intended to underwrite the subject project. In order to overcome this deficiency, it would be necessary to augment the Agena D program office budget by that amount of money necessary to fund Eell. Detail analysis of the funding reveal that a cost saving of \$284,000 had been effected during the negotiation of the Agena D Facility Contract and these moneys could be applied together with \$129,000 to be derived from funds under Colonel Wogen's control, thereby providing the \$413,000 necessary to finance the project.

3. The following additional information was discussed:

a. Eell alleges that it did indeed negotiate a lower engine price based on their assurance by the USAF that the modernization facilities in question would be furnished. However, no explicit recognition of this factor was evident in the Agena D engine negotiations.

b. The negotiation on the part of Eell Aerosystem Company to gain these facilities was done separate and apart from LMSC facilitization.

ROBERT K. LE BECK
Lt Colonel, USAF
Chief, Astro Vehicle Division

1 Atch
Memo for Record same
subj dtd 15 May 62

Cy to:

SSH
SSN
SSC
SSHA

SSII

Technical Support Contract

SS:ID (LtCol Elum)

1. One of the basic philosophies of the Agena D Program which we are currently implementing is the segregating of the production effort for the 39 vehicles (-58 contract) from the technical support and component improvement. The -68 contract is well under way. Now is the time to begin work on the support contract in order that the contract can be definitized in an orderly manner.
2. It is requested that you formulate a work statement for the technical support contract in order that we can request LMSC for a proposal in the near future. Formalizing that work statement will also aid us in determining the organization relationship internally and with LMSC.
3. It is desired that you provide the above work statement no later than 31 May 1962.

HENRY B. KUCHEMAN, JR.
 Colonel, USAF
 System Program Director for Agena

179

180

FOR OFFICIAL USE

JERRY W. BEECHER

SECURITY CLASSIFICATION

OFFICE SYMBOL AND/OR FILE NUMBER

PRECEDENCE	TYPE MSG (CLASS)	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION Routine	BOOK	MULTI	SCCBB 29-5-141	UNCLAS
INFO Routine				

FROM: SSD LCSA CALET

SPECIAL INSTRUCTIONS

TO: AFSC ANDREWS AFB MD

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

CONFIDENTIAL/SSH-1-6-4

ACTION SCCB; INFO SCGN. REF AFSC MESSAGE
SCCBB-29-5-141 DTD 29 MAY AND USAF MESSAGE AFSSV-EQ-
80915 DTD 5 JAN. COPIES OF THE ABOVE CITED HQ USAF
MESSAGE CONTAINED IN REPORT ON AGENA D CONTRACT
STATUS DATED 18 MAY 62 RECENTLY FURNISHED YOUR HQ.
THIS MESSAGE IN FOUR PARTS. PART I. THE FUNDING
GUIDANCE IN THE REFERENCED AFSC MESSAGE IS
ACKNOWLEDGED AND WILL BE FOLLOWED IN SUBMISSION OF
FUTURE FISCAL REQUIREMENTS FOR PROGRAM 648B. IT
SHOULD BE POINTED OUT THAT ALL FUNDS ORIGINALLY
ALLOCATED TO PROGRAM 648B BY HQ USAF WERE
REIMBURSABLE FUNDS. AS OF 31 MAY BY A SERIES OF

SSH-945

DATE	TIME
1	
MONTH	YEAR
June	62

SYMBOL	SSH	
TYPED NAME AND TITLE (Signature, if required)	Col Buchanan	
SECURITY CLASSIFICATION	PAGE NO.	NR. OF PAGES
CONFIDENTIAL	1	7

SIGNATURE	TYPED (or stamped) NAME AND TITLE

LOS: CALIF

ACTIONS, HQ USAF HAS CONVERTED EMERGENCY FUNDS, REPROGRAMMED FUNDS AND PROGRAM 6924 FUNDS TO COVER THE AGENA D DEVELOPMENT, ENGINEERING, AND INDUSTRIAL FACILITIES REQUIREMENTS. AS OF THIS DATE A TOTAL OF \$35,396,734 HAS BEEN IDENTIFIED. FY 62 REIMBURSABLE FUNDS TALLING \$3M STILL REMAIN TO COMPLETE THE FY 62 FISCAL REQUIREMENT. THESE FUNDS WERE ALLOCATED BY HQ USAF TO COVER THE LONG LEAD TIME REQUIREMENTS FOR COMPONENTS AND TO ESTABLISH INITIAL PIPELINE FLOW IN SUPPORT OF THE PRODUCTION CONTRACT. PART II. THE AGENA D PROGRAM OFFICE HAS BEEN DIRECTED (REF CITED USAF MESSAGE) AS FOLLOWS:

QUOTE PROCUREMENT OF A MAXIMUM QUANTITY OF 39 VEHICLES SCHEDULED AT A RATE NOT TO EXCEED FOUR PER MONTH UNDER THE FOLLOW-ON CONTRACT IS APPROVED. FUNDING NECESSARY FOR LONG LEAD TIME ITEMS WILL BE WITH FY 62 FUNDS. CONTRACTOR COMMITMENTS WILL BE HELD TO A MINIMUM CONSISTENT WITH PROTECTING CONTRACT DELIVERY SCHEDULES.

UNQUOTE. THE CONTRACTOR'S REQUIREMENT FOR FY 62 FUNDS TO PROTECT THE FOUR VEHICLE PER MONTH

105

SSH

PAGE 2

NR OF PAGE

CONFIDENTIAL

INITIAL HPI

W L BA CASE

102

PRODUCTION RATE IS ESTABLISHED AS 1000. THESE FUNDS
 ARE AND ARE BEING EXPENDED TO MAKE THE MOST
 ECONOMICAL LOT BUYS OF LONG LEAD TIME COMPONENT
 ITEMS WHICH ARE NECESSARY TO SUSTAIN THE ESTABLISHED
 PRODUCTION RATE AND PRODUCTION SCHEDULE. SUCH
 THINGS AS THE BELL 5996 ROCKET ENGINE, THE
 INNEAPOLIS HONEYWELL IRP, THE BELL VELOCITY
 METER, THE BARNES HORIZON SENSOR, AND OTHERS, HAVE
 BEEN PLACED ON SUBCONTRACT IN ORDER TO INITIATE THE
 PIPELINE FLOW. LMSC HAS BEEN INSTRUCTED THAT THE
 PRODUCTION CONTRACT IS TO BE A FIXED PRICE CONTRACT.
 IF NECESSITY, LMSC HAS GONE TO THEIR SUBCONTRACTORS
 AND VENDOR SUPPLIERS ON FIXED PRICE CONTRACTS TO
 THE MAXIMUM DEGREE FEASIBLE, ESTABLISHING A
 DELIVERY RATE WHICH IS COMPATIBLE WITH THE
 REQUIRED VEHICLE DELIVERY RATE OF FOUR VEHICLES PER
 MONTH. THE LOCKHEED COST QUOTE FOR THE INITIAL
 PRODUCTION LOT OF 39 VEHICLES IS SCHEDULED TO BE
 PRESENTED TO THIS HQ NO LATER THAN 15 JUN 62. FROM
 THE FOREGOING, IT IS OBVIOUS THAT ANY VACILLATION ON
 THE PART OF THE AIR FORCE IN ESTABLISHING EITHER THE

WOL SH	PAGE NR 3	NR OF PAGES	SECURITY CLASSIFICATION CONFIDENTIAL	INITIALS SEK
-----------	-----------------	----------------	--	-----------------

FORM 173-1

LCS2 CALL

LOT SIZE OR THE DELIVERY RATE FOR THE PRODUCTION CONTRACT WILL NECESSITATE A CHANGE IN THE BASIS OF THE FIXED PRICE QUOTE. THIS IN TURN WILL DELAY THE PLANNED PROGRAM. IT SHOULD BE NOTED THAT IN THE INTERVENING PERIOD FROM 5 JAN TO DATE, THERE HAVE BEEN SLIPPAGES IN SEVERAL PROGRAMS AND ADDITIONS TO PROGRAM 622A. THE CURRENT FY 63 END POSITION, ASSUMING A PRODUCTION RATE OF FOUR VEHICLES PER MONTH, WOULD BE AN EXCESS OF EIGHT VEHICLES. THE CURRENT SCHEDULE FOR DELIVERY OF VEHICLES TO PROGRAMS IS SHOWN ON PAGE 48 OF THE AGENA D STATUS BRIEFING PRESENTED TO YOUR HQ ON 1 MAY. COPIES OF THE BRIEFING ARE AVAILABLE IN SCCM. PART III. REF PART V OF REFERENCED AFSC MESSAGE. THE AGENA D PROGRAM HAS BEEN PROVIDED 21.5M OF 57X3600 FUNDS AS A FY 62 LINE ITEM FOR THE DESIGN, DEVELOPMENT, TEST AND QUALIFICATION OF THE AGENA D VEHICLE. ADDITIONALLY, 3.296M HAVE BEEN PROVIDED FROM PROGRAM 622A TO ESTABLISH THE INDUSTRIAL FACILITY TO SUSTAIN A PRODUCTION RATE OF FIVE VEHICLES PER MONTH. FY 62 FUNDS TALLING 10.5M HAVE BEEN

BY SSH	PAGE NR 4	NR OF PAGE	SECURITY CLASSIFICATION CONFIDENTIAL	INITIAL HEK
-----------	-----------------	---------------	--	----------------

LOSA CALIF

PROVIDED FROM PROGRAM 622A TO COVER THE COST OF INITIAL DELIVERIES OF THE 12 PROTOTYPE FLIGHT VEHICLES. THE REMAINING FUND REQUIREMENT OF 7.8M HAS BEEN REQUESTED AS A FY 63 AGENA D LINE ITEM. THE COMPLETE FUNDING REQUIREMENT FOR THE AGENA D PROGRAM FOR FY 62 AND FY 63 IS CONTAINED IN OUR MESSAGE SSH-18-5-26 DATED 7 MAY 62. BASED ON THE CURRENTLY APPROVED AFSSD LAUNCH SCHEDULE, AGENA D REQUIREMENTS AT THE TIME OF BUDGET SUBMISSION BY THIS DIVISION INDICATE THAT 83.2M HAVE BEEN REQUESTED AND JUSTIFIED FOR FY 63. DURING FY 62 NO FUNDS WERE PROGRAMMED BY THE USING PROGRAMS TO SUPPORT THE AGENA D DEVELOPMENT. SHOULD YOUR HQ DIRECT THAT THE 13.0M OF REIMBURSABLE FUNDS BE REPLACED BY 57X3600 PROGRAM DERIVED FUNDS DURING FY 62, IT WILL BE NECESSARY TO INCREASE AFSSD PROGRAM FUNDS BY THIS AMOUNT. PART IV. FROM THE OUTSET OF THE AGENA D PROGRAM THIS DIVISION HAS SOUGHT TO PROFIT FROM THE EXPERIENCE GAINED IN THE PROCUREMENT OF AGENA B, THOR AND ATLAS SPACE BOOSTERS. ONE OF THE CARDINAL PRINCIPLES IN ESTABLISHING THE BASIS OF THE

has

LOSA CALL

AGENDA D PROCUREMENT ALL FLEXIBLE PRICES WILL BE
 REMOVED, THE CURRENT FIXED PRICE APPROACH TO
 CONTRACTING WILL HAVE TO BE DRASTICALLY ALTERED IF
 NOT ABANDONED. IT SHOULD BE ANTICIPATED THAT ANY
 STRETCH OUT IN DELIVERY SCHEDULE WILL INCREASE COST.
 THE EXACT IMPACT OF SUCH AN ACTION WILL HAVE TO BE
 CAREFULLY EVALUATED BEFORE A FIRM RECOMMENDATION
 CAN BE MADE. IT IS ESTIMATED SUCH AN EXAMINATION
 WILL NOT BE AVAILABLE PRIOR TO 15 JUL 62. IN VIEW
 OF THE FOREGOING, IT IS STRONGLY RECOMMENDED THAT
 YOUR HQ EXERT EVERY POSSIBLE PRESSURE ON HQ USAF
 TO MODIFY THE INFLEXIBLE FUNDING GUIDANCE AND
 PERMIT THIS DIVISION TO ESTABLISH A STABLE FIXED
 PRICE CONTRACT WITH A SPECIFIED DELIVERY RATE AND
 LOT BUY IN SUPPORT OF VALIDATED REQUIREMENTS.

BY SSH	PAGE NR 7	NO OF PAGES 7	SECURITY CLASSIFICATION CONFIDENTIAL	INITIAL HEE
-----------	-----------------	---------------------	--	----------------

~~CONFIDENTIAL~~
182

ROUT MESSAGEFORM

DATE AND TIME RECEIVED

PRECEDENCE		TYPE MSG (CLASS)		ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION - Routine		SSSC	MULTI	SINGLE	SSH-1-6-4	
INFO - Routine						
FROM: Routine						SPECIAL INSTRUCTIONS

SSD LOSA CALIF

TO:
AFSC ANDREWS AFB MD

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 42 YEARS,
DOD DIR 5200.10

SECRET/SSH-2-6-7

ACTION SCCB; INFO SCGN. REFERENCE MESSAGE SSH-1-6-4 WHICH WAS IN RESPONSE TO AFSC MESSAGE SCCBB-29-5-141. THIS MESSAGE IS FOLLOW-UP TO SSH INITIAL REPLY AND IS IN FOUR PARTS. PART I. THE FUNDING GUIDANCE IN THE REFERENCED AFSC MESSAGE NEGATES THE SUBMISSION OF FY-63 FISCAL REQUIREMENTS FOR PROGRAM 648B AS SUBMITTED. REFERENCE REIMBURSABLE FUND REQUIREMENT FOR 648B - AGENA D DATED 2 APR 62 (SSH-1)(S) AND FOLLOW-UP SSH MESSAGE SSH-18-5-26. THESE FUNDING REQUIREMENTS WERE BASED ON USING PROGRAM REIMBURSEMENT TO THE AGENA D AT TIME OF VEHICLE

DATE	TIME
2	
MONTH	YEAR
	62

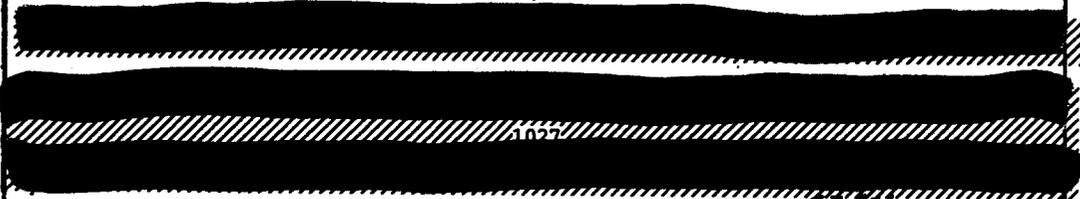
SYMBOL		CONFIDENTIAL		SIGNATURE		JUN 62	
SSH		TYPED NAME AND TITLE (Signature, if required)		TYPED (or stamped) NAME AND TITLE			
Maj Hegerle		PAGE NO.		HENRY B. KUCHEMAN, JR.			
COMMUNICATIONS SECTION		NR. OF PAGES		Colonel, USAF			
SECRET				Systems Program Director for Agena			
						SSH 950	

SS. LOSA CALIT

CONFIDENTIAL

8
52

DELIVERY TO THE USING PROGRAM. THE PRESENT AFSC FUNDING GUIDANCE REQUIRING USING PROGRAM FUNDS AT TIME OF PROCUREMENT WILL REQUIRE RESUBMISSION OF FUNDING REQUIREMENTS FOR FY-63. THE PROCUREMENT LEAD TIME FOR THE AGENA D IS 12 MONTHS TO ON DOCK DELIVERY TO THE USING PROGRAMS FOR THEIR PROGRAM PECULIAR INSTALLATION, CHECKOUT AND LAUNCH. BACK DATING THE CURRENT SSD VEHICLE REQUIREMENT DATES BY 12 MONTHS PROVIDES THE FY THAT PROGRAM DERIVED FUNDS ARE REQUIRED. PART II. AS INDICATED IN PART III OF



VEHICLES. THE FY-63 FUNDING REQUIREMENT TO COMPLETE PROCUREMENT OF THESE 12 VEHICLES WILL BE PROGRAM 622A DERIVED FUNDS. HQ AFSC DIRECTION THAT THE 13M OF FY-62 REIMBURSABLE FUNDS BE REPLACED BY 57X3600 PROGRAM DERIVED FUNDS DURING FY-62 REQUIRES INCREASES TO FY-62 AFSSD PROGRAM FUNDS. STARTING WITH THE 13TH VEHICLE OR FIRST PRODUCTION AGENA D THE LATEST SSD VEHICLE REQUIREMENT SUMMARY DATED

SS SS	PAGE NO 2	NO. OF PAGES 4	SECURITY CLASSIFICATION CONFIDENTIAL	BU MJ
----------	--------------	-------------------	---	----------

CONFIDENTIAL

SSS LCMV 173-1

21 MAY 63: REVIEW THE FOLLOWING MEMORANDUM BY
PROGRAM FOR THE FIRST TEN PRODUCTION VEHICLES AT

[REDACTED SECTION]

BY PROGRAM BASED ON THE ABOVE SSD VEHICLE REQUIREMENT
SUMMARY AND 12 MONTH LEAD TIME PROVIDES THE

[REDACTED SECTION]

AIR FORCE PROGRAMS AND 5.2 ARPA (60.0AM). THIS TOTAL
OF 44 VEHICLES PLUS THE 10 VEHICLES PROCURED WITH
FY-62 FUNDS TOTALS A 54 PRODUCTION VEHICLE
REQUIREMENT AGAINST THE CURRENT 39 VEHICLE BUY.
THIS DIFFERENCE OF 15 VEHICLES REPRESENTS FY-63

SYMBOL	PAGE NO	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
SSS	3	4		MJH

CONFIDENTIAL

~~CONFIDENTIAL~~

FUNDING REQUIREMENTS IN SUPPORT OF LONG LEAD
 PROCUREMENT TO PROTECT FY-64 REQUIREMENTS. THESE
 TOTALS DO NOT INCLUDE CONTEMPLATED (NOT FIRM) NASA
 REQUIREMENTS, OR PLANNED AIR FORCE PROGRAM
 REQUIREMENTS. PART IV. TOTAL VEHICLE REQUIREMENTS
 AS REFLECTED IN SSD REQUIREMENTS SUMMARY

REFERENCED ABOVE:

FY-62						FY-63								
A	M	J	J	A	S	C	N	D	J	F	M	A	M	J
1	1	2	2	2	3	2	3	4	4	3	5	3		

FY-64

J	A	S	O	N	D	J	F	M	A	M	J
3	3	3	3	3	1	3	2	2	1	1	2

THIS TOTAL OF 66 VEHICLES REFLECTS THE 12 PROTOTYPE
 FLIGHT VEHICLES AND THE 54 PRODUCTION VEHICLE
 REQUIREMENT THROUGH FY-64. THESE DATES ARE
 VEHICLE NEED DATES AND HAVE TO BE BACK DATED FOR
 THE 12 MONTH PROCUREMENT LEAD TIME. (SP-3)

SSH	PAGE NR	4	NO. OF PAGES	4	SECURITY CLASSIFICATION	CONFIDENTIAL	DATA
							MJF

~~CONFIDENTIAL~~

183

JUN 10 4 52

115

AFPR: Surveillance of -32 Contract Spares Procurement

AFPR/O (Col Voyles)
Modified Aircraft Corp
Aircraft & Space Company
P. O. Box 304
Sunnyvale, California

1. This office plans to procure spare parts for the -32 contract on a fixed price basis to a definitive list. The items selected for procurement and the quantity of each item required will be determined by LMSC in accordance with methods and procedures which have been agreed upon with AFPR and AFSSD personnel. These procedures are to be formalized in writing by Mr. Garcia as soon as possible.
2. In order to assure that the spares procured under this contract represent a reasonable estimate of program requirements, it will be necessary to perform unusually comprehensive surveillance of the contractor's activities. This will require the full time of one qualified individual to audit the contractor's provisioning records and review the provisioning recommendations.
3. Accordingly, it is requested that this office be advised the name of the individual who will be responsible for accomplishing this action. We will take action to provide the designated individual access to the Agena D area.

SIGNED

HENRY E. KUCHEMAN, JR.
Colonel, USAF
System Program Director for Agena

Copy to: SSSP (Mr Ward)

SSVZO/SSHAG
SSN

184

CZCXA003ZCUGA111

FM RJVZBX
DE RJEZFF 14

ZNY
R 121406Z

FM DCKSF ANDREWS AFB MD
TO RJVZBX/SSD LOS ANGELES CALIF
INFO RUSEVT/HSFC HUNTVILLE ALA
AF GANC

BT

UNCLAS / NSFA 12-6-23

SSD FOR SSVZO, SSKAG AND SCN11 .: FOR M-L AND NA. THE USAF
WAS ACCEPTED THE RESPONSIBILITY FOR FUNDING, DESIGNING,
MODIFYING AND EQUIPPING AHS COMPLEX 14 TO SJ ATLAS/AGENA
CONFIGURATION. CURRENT PLANS ARE TO MODIFY THE EXISTING
SERVICE TOWER RATHER THAN BUILDING A NEW SERVICE TOWER.
AUTHORITY TO PROCEED WITH THIS MODIFICATION IS CONTINGENT
UPON THE RELEASE OF THE PAD BY PROJECT MERCURY. IF AUTHORITY
IS REQUIRED AT THIS TIME DUE TO LONG LEAD TIME FACTORS,
REQUEST SUFFICIENT JUSTIFICATION BE PRESENTED ON A FORM 161
FOR APPROVAL.

BT

12/1434Z JUN RJEZFF

NNNN

41278

185

1. O/Maj Egerle/MD 3511

Request for Information by the Space
Technical Objectives Task Group

SSQ (LtCol C G Strathy)

1. Reference SSQ letter, same subject, dated 8 June 1962.
2. The attached information on program 6483 is forwarded as requested.

Henry E. Kucheman, Jr.
 HENRY E. KUCHEMAN, JR.
 Colonel, USAF
 System Program Director for Agena

1 Atch
 6483 Summary

513

SSHD Read File

Part I. 64EB System Summary

1. 64EB program.

B. The 64EB program has been established for the design, development and production of Agena D satellite vehicles, standard in nature and capable of being used with a minimal degree of change in various satellite programs.

1. The prime objectives of the Agena D program are:



b. To provide a fixed-price procurement source for Agena D vehicles with a production capacity of five vehicles per month.

2. The basic vehicle makes maximum use of previously developed Agena vehicle equipment, incorporates modular construction, which divides into the following assemblies: forward section, propellant tank section, aft section, and the adapter section. The Agena D can be mated to the Atlas or Thor first stage booster for launch at FAE or AAE.

C. 1. Currently, the program is progressing on schedule with the first three Agena D's delivered on or before scheduled delivery date. Manual system testers are on line with FACE (Factory Automatic Checkout Equipment) on schedule to support the follow-on production rate.

2. Significant milestones include - first Agena D delivery 16 April 1962; definitized basic contract 26 April 1962; first launch 28 June 1962; cost proposal follow-on contract 15 June 1962; first production delivery September 1962.

Part II. System Description.

A. 64EB program.

B. Description of System Elements:

1. Concept:

The design concept of the Agena D is to provide a program office with a standardized ascent or orbital vehicle that is reliable, easily adapted to program requirements, and



2. Approach:

In conformance with directives received from HQ USAF and in recognition of the urgency attached to the satisfactory accomplishment of the accelerated Agena D program, certain extraordinary and unusual technical and contractual relationships were established with the contractor (LSC) and rigorously adhered to by both the contractor and the government. In general these ground rules apply a streamlined AF/contractor management concept and include a DX priority, reduction in formal procedures, exclusion area in which to perform the work, and extraordinary program management channels. To insure compliance by both parties, these "ground rules" were made a preamble to the contractual work statement for the accelerated Agena D program. For a more detailed description and procedures, refer to Part II of the abbreviated program plan, program 662A (64SB) dated 22 December 1961.

3. Objective or Capability.

The prime objectives of program 64SB were to design, develop and produce a standardized second stage booster capable of performing essential ascent and/or orbital functions required

design objectives include accessibility, maintainability, producibility and make maximum use of already qualified Agena B components. In the design of the Agena D space was set aside for mission peculiar functions and related components. Thus, a standard second stage booster, basically simple in design, and capable of performing these missions, has been established. This vehicle has built-in adaptability for advanced components without change in basic design of structure. A modular concept is employed, in addition, for flight and mission equipment. Vehicle equipment has not been co-mingled with payloads and payload peculiar equipment or with additional vehicle equipment necessary for a particular mission. This program also provides as a primary objective, creation of a procurement package to permit a fixed price procurement and creation of a production capability of five Agena D's per month.

918

[REDACTED]

[REDACTED]

The sensor is bench aligned and then installed in the vehicle as a unit, with the module mounting closely controlled to provide inherent alignment to the vehicle geometric axis. The gas valves and hydraulic sensors will be mounted to the same vehicle geometric axis as the sensors. The Barnes horizon sensor is capable of viewing the horizon from either the horizontal or vertical positions and thus, will accommodate horizontally oriented vehicles, as well as nose up or nose down vertically oriented vehicles. The IRP has the MIG roll gyro for improved yaw control on orbit for horizontally oriented vehicles. For the vertically oriented vehicles the MIG yaw gyro will perform the gyro compassing.

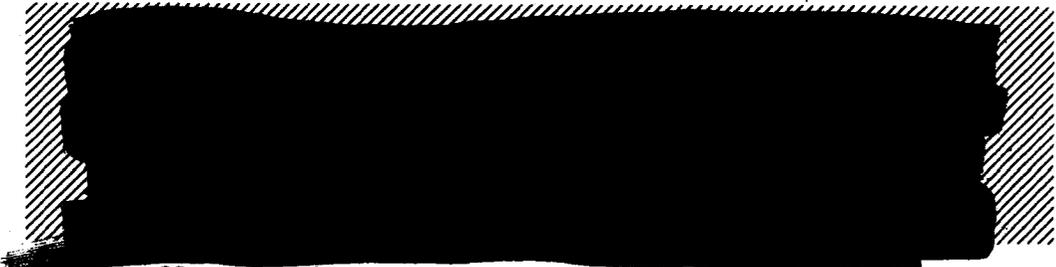
5. Ground Support Requirements.

The two manual system test complexes (C-3 and C-5) have been modified and are on line to support the basic Agena D development contract. They will be used as back up to the Factory Automatic Checkout Equipment (FACE) being developed to support the follow-on production rate. This test equipment will test and checkout the basic Agena D for delivery to the using program; at this point the using program assumes responsibility for additional equipment installation and test to launch. Although the Agena D program responsibility ends upon using program acceptance, the design concept and test philosophy developed greatly influences the manner in which using programs conduct additional tests. Consistent with the vehicle design concept of interchangeability and easy access, the test and checkout equipment will not have diagnostic capability below the module/black-box level. A malfunction of a major piece of vehicle equipment will require a plug-in type replacement of the malfunction unit. This test philosophy will also be utilized at the launch base.

6. Booster/Power Plant Requirements:

The booster adapter supplied as part of the basic Agena D is compatible with the Thor DM21; as optional equipment, a booster adaptor kit is available to mate the Agena D with the Atlas booster. The main engine for the Agena D is a

517



Propellant dumping system; secondary propulsion system;
and Delayed Restart Mt.

C. Program Status.

1. In compliance with guidance received from Hq USAF by Hq USAF messages; AFSDC-F 62350 dated 30 Nov 61, AFSDC 80799 dated 22 Nov 61 and AFSDC-33 90915 dated 5 Jan 62, two separate contracts have been established to accomplish the stated objectives of the accelerated Agena D program. The basic development/engineering contract (AF 04(695)-21) provides the necessary engineering capability and industrial base for the design, development, fabrication, assembly, qualification and test of twelve prototype Agena D flight vehicles with initial delivery to support a 26 June 62 first launch. This contract was definitized as a CPIC contract in conformance with guidance received from Hq USAF on 26 April 1962. Equal weight was given to cost, schedule and performance for division of fee.

2. Milestone Chart:

Standardization Study	30 June 1961
Initial Go-Ahead	25 Aug 1961
Accelerated Go-Ahead	7 Nov 1961
Program plan approval	3 Jan 1962
Contract approved Hq USAF	26 Apr 1962 -
First Agena D Delivery	16 Apr 1962
First Launch	22 June 1962
Letter contract for production	18 Dec 1961
First production Agena D delivery	12 Sept 1962

3. Associated effort.

The basic E&D contract encompassed all requirements for the complete redesign and qualification of the Agena D vehicle. It authorizes the fabrication and use of development tools such as the Propulsion Test vehicle which was utilized to proof test the orifice pressurization system and the dual start capability of the rocket engine, the structural test vehicles which were utilized to concurrently qualify the forward equipment rack and aft structure, and the thermal

~~SECRET~~

SSH-958

installing, qualifying, and start-up activities, and other program peculiar and component improvement modifications in support of all programs utilizing the Agena D stage.

D. Proposed Augmentation.

1. The basic R&D contract also provides for creation of the procurement package required to permit a fixed price procurement and the creation of a production capability of five vehicles per month. The follow-on Letter Contract was let on 18 Dec 1961 and has been established to support an initial delivery of 39 production Agena D vehicles at a production rate of four vehicles per month. This procurement package consists essentially of the Detail Model Specification, Vehicle Acceptance Test Specification, and Engineering Drawings to define the item under procurement, Hard Tooling, and a new DMSO facility (Building 152) to manufacture the vehicle, and Configuration Control to insure recurring quality. The production rate will be adjusted to satisfy the using program requirements.
2. Hq USAF has directed that no component improvement effort would be included in the fixed price for follow-on vehicles. In conformance with this direction an Agena D component improvement program was submitted and justified separately during the present budget cycle. This program will provide for improved reliability, producibility, mission adaptability and serviceability of the production Agena D. For further detail information on this program, refer to ABRIDGED package, 646E-Agena D, 62-40502, dated 2 April 1962.

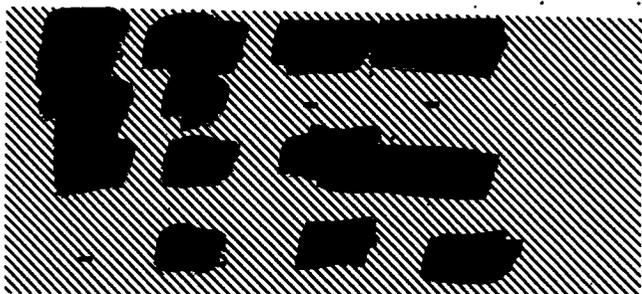
E. Funding Summary.

1. The required funding for the basic R&D contract, the present production contract and the component improvement program are listed below. No funds prior to FY-62 were utilized.

Basic R&D program

Follow-on production
(39 vehicles/4 vch/yo.)

Component Improvement



~~SECRET~~
~~SECRET~~

SSH-958

5-186

~~CONFIDENTIAL~~

7125
19:42

TO LMSC J C SCHLAP, MANAGER, PROGRAM 102 DEPT 67-31 PLANT :
ELC 104 SUNNYVALE CALIF
FROM BOEING AIRCRAFT CO INC T J SMITH
INFO LMSC AUSTIN GRAY, Z E CROSTHER DEPT 62-60
INFO AFSC MAJOR R R MOORE, SSZD AND CAPT J OSTROMINSKI, SSVXE
INGLEDWOOD CALIF

415

~~CONFIDENTIAL~~ IN REPLY REFER TO A2-200-TSP-337
ATTN W G IRWIN, CHIEF THOR AND SPECIAL SPACE SYSTEMS ENGINEER
SUBJECT.. DSV-2C ASCENT TRAJECTORY
REFERENCE.. LMSC/A047851

THE CONTROL PROGRAM FOR DSV-2C FOR THE [REDACTED] FROM THE REFERENCE,
AND LISTED IN TABLE I, CAN BE ACCOMMODATED BY MODIFYING THE
PROGRAMMER TO ALLOW A YAW RATE. THIS MODIFICATION IS NOT THE
SAME MODIFICATION PRESENTLY BEING MADE ON THE DM21 PROGRAMMER FOR
622A PROGRAM VEHICLES.

THE CONTROL PROGRAM SATISFIES THE LMSC LOADING CONSTRAINTS /TABLE II/
AND THE PERFORMANCE REQUIREMENTS FOR THIS PARTICULAR MISSION AS
LISTED IN TABLE III.

THE CONTROL PROGRAM DESCRIBED IN TABLE I DOES NOT ACHIEVE THE MAXIMUM
VELOCITY CAPABILITY OF THE DSV-2C BOOSTER BECAUSE IT DOES NOT
REPRESENT AN OPTIMUM TRAJECTORY. THE RESULTANT LOSS OF VELOCITY, OF
COURSE, REPRESENTS A REDUCTION IN PAYLOAD CAPABILITY AND/OR PAYLOAD
MARGIN.

THE INITIAL YAW RATE ALIGNS THE VEHICLE PITCH PLANE WITH THE LOCAL
VERTICAL. THE ANGULAR DEVIATION ACQUIRED DURING THE SIMULTANEOUS
PITCH AND ROLL MANEUVER WHEN YAW IS EXCLUDED IS APPROXIMATELY MINUS
2.5 DEGREES AT 10 SECONDS AND IS REDUCED TO MINUS 2.5 AT 90 SECONDS.
THIS SMALL DEVIATION HAS A MINOR AFFECT ON VEHICLE PERFORMANCE AND
ACCURACY. DUE TO PROGRAMMER LIMITATIONS THE SAME YAW RATE WHICH
CORRECTS THE PITCH PLANE ORIENTATION MUST BE USED TO ACHIEVE ANY
PROGRADE INCLINATION CHANGES DESIRED, /I.E. INCREASED PAYLOAD
CAPABILITY/. THE USE OF A YAW RATE WITH THE PITCH AND ROLL RATE IS
AN UNNECESSARY LIMITATION ON THE VEHICLE PAYLOAD CAPABILITY IN AS
MUCH AS IT DOES NOT AFFECT THE ANGLE OF ATTACK-DYNAMIC PRESSURE
HISTORY EXPERIENCED BY THE VEHICLE.

1096

THE ANGLE OF ATTACK-DYNAMIC PRESSURE HISTORY OF THE VEHICLE WILL BE
ALTERED AS NEW DATA DEFINING VEHICLE CENTERS OF PRESSURE, AERODYNAMIC
COEFFICIENTS, AND CENTERS OF GRAVITY BECOME AVAILABLE. THE CONTROL
PROGRAM DEFINED IN TABLE I COMBINED WITH THESE DATA WILL NOT
NECESSARILY SATISFY THE LMSC CONSTRAINTS, PARTICULARLY THE 600 DEGREE
POUNDS/SQUARE FOOT IN THE 15,000 TO 40,000 FOOT ALTITUDE REGION.

CONSIDERING THESE ITEMS DAC RECOMMENDS THAT THE CONTROL PROGRAM SHOWN
IN TABLE IV BE USED.

USE OF THIS CONTROL PROGRAM REQUIRES THE 600 DEGREE POUNDS/SQUARE
FOOT CONSTRAINT BE REVISED TO ALLOW FOR VALUES UP 850 DEGREE POUNDS/
SQUARE FOOT. HOWEVER, AN INCREASE IN BOOSTER APOGEE VELOCITY TO 181

... BE ACHIEVED ALONG WITH ADDITIONAL INCREASED PAYLOAD CAPABILITY DUE TO THE TABLES PROGRADE INCLINATIONS WHICH NOW BECOME AVAILABLE.

THE LMSC CONSTRAINTS DEFINED IN TABLE II ARE VERY SIMILAR TO THE DM-21 CONSTRAINTS. THESE CONSTRAINTS SHOULD BE RE-EVALUATED CONSIDERING THE DSV-2C TRAJECTORY CHARACTERISTICS WHICH DIFFER DISTINCTLY FROM THOSE OF DM-21 FLIGHTS. DAC HAS EVALUATED THIS CONTROL PROGRAM TO CONSIDER THE EFFECTS OF 3 SIGMA HIGH THRUST LEVELS OF MAIN VEHICLE, AND SOLID BOOSTERS, 99 PERCENT VAFB WIND PROFILES, AND WIND SHEARS. EVEN IF THESE DEVIATIONS ARE COMBINED IN AN ADDITIVE MANNER THE ANGLE OF ATTACK-DYNAMIC PRESSURE LIMIT /8,600 POUND DEGREES/SQUARE FOOT/ FOR WHICH THE AGENA D SHROUD HAS BEEN DESIGNED /AT THE REQUEST OF LMSC/ CANNOT BE ACHIEVED. DAC CANNOT REPRODUCE OR SIMULATE CONDITIONS WHICH LMSC APPARENTLY IS USING TO DEFINE THE CONSTRAINTS OF TABLE II FOR THE DSV-2C VEHICLES.

DAC CANNOT UNDERSTAND THE APPLICABILITY OF THE CONSTRAINTS LISTED IN TABLE II FOR THE DSV-2C FLIGHTS, IN THAT WE MUST ASSUME THAT THE AGENA D STRUCTURAL LIMITS MUST AT LEAST BE EQUIVALENT TO THOSE REQUIRED FOR THE AGENA D SHROUD.

THE IMPROVED PERFORMANCE CAPABILITY FOR THE DSV-2C BOOSTER AND THE INCREASED MISSION FLEXIBILITY FOR FUTURE FLIGHTS ACHIEVED WITH THE CONTROL PROGRAM OF TABLE IV SHOULD BE USED TO EVALUATE REALISTIC CONSTRAINTS FOR DSV-2C VEHICLE FLIGHT MODES.

DAC RECOGNIZES THE SCHEDULING PROBLEMS EXISTING FOR THE FIRST 102 PROGRAM FLIGHT AND THEREFORE REQUESTS AN IMMEDIATE REPLY CONCERNING THE DESIRED 102 MISSION AND VEHICLE CONSTRAINTS TO BE SATISFIED. THESE DATA ARE REQUIRED TO GENERATE THE BOOSTER RANGE SAFETY DATA TO BE SUPPLIED TO LMSC TO MEET THE PWR RANGE SAFETY DOCUMENT SCHEDULE.

TABLE I
LMSC RECOMMENDED DSV-2C CONTROL PROGRAM

TIME /SECONDS/	PITCH RATE /DEGREES/SECONDS/	YAW RATE /DEGREE/SECONDS/	ROLL RATE /DEGREES/SECONDS/
0-2	0	0	0
2-5	0	0	5.2
6-10	MINUS 3.6	MINUS 0.75	5.2
10-55	MINUS 0.520	0	0
55-90	MINUS 0.520	0	0
90-130	MINUS 0.531	0	0
130-MECO	0	0	0

TABLE II
LMSC LOADING CONSTRAINTS *

ALTITUDE /FEET/	/ANGLE OF ATTACK/ DEGREE	/DYNAMIC PRESSURE/ POUNDS/SQUARE FEET
0-15,000		2000
15,000-40,000		600
ABOVE 40,000		4000

* FOR PERTURBED VEHICLE FLIGHT EXCLUDING EFFECT OF WIND VELOCITY, WIND SHEARS AND GUSTS.

TABLE III

TITLE III

**102 PROGRAM ACCEL TRAJECTORY PERFORMANCE REQUIREMENTS-X
GA**

BOOSTER APOGEE ALTITUDE 22 N. MILES
BOOSTER APOGEE VELOCITY /INERTIAL/ 11,300 FPS
BOOSTER APOGEE INCLINATION 79 DEGREES

**X DATA OBTAINED FROM MESSERS POLLAK AND HEHENOVER LMSC, DURING
TELECON. 5-8-52 AND 6-11-52**

TABLE IV

DAC RECOMMENDED DSV-2C CONTROL PROGRAM TIME	PITCH RATE	YAW RATE	ROLL RATE
/SECONDS/	/DEGREES/SECOND/	/DEGREES/SECOND/	/DEGREE/SECOND/
0-2	0	0	0
2-7	0	0	5.8125
7-10	MINUS 5.0448	0	5.8125
10-50	MINUS 0.63050	0	0
50-90	MINUS 0.47295	0	0
90-130	MINUS 0.27745	Y	0
130-TR	0	0	5.8125
TR-MECO	0	0	0

**WHERE Y IS YAW RATE REQUIRED TO ACHIEVE DESIRED PROGRADE INCLINATION,
AND TR IS END OF ROLL PERIOD REQUIRED TO ALIGN VEHICLE PITCH PLANE
WITH LOCAL VERTICAL WHEN PITCH AND YAW MANEUVERS ARE PERFORMED
SIMULTANEOUSLY.**

PCP4
T
15/1928 JUNE 52

**DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10**

**END TULC .
DE INCL ACK1 END**

~~CONFIDENTIAL~~

187

MEMORANDUM FOR RECORD

25 June 1962

SUBJECT: Component Improvement Briefing to MajGen Ritland and Dr Charyk

1. In conformance with Hq USAF message AFSSV dated 18 June 1962, a Component Improvement and Agena D Status Briefing was given to MajGen Ritland (Hq AFSC) at 1100 hours and to Dr Charyk (SAFUS) and the below listed individuals from the Secretariat and Hq USAF at 1600 hours, 25 June 1962.
2. The personnel in attendance at the briefing to Dr Charyk were: Secretary Imlrie; Mr Williams, representing Secretary McMillan's office; Mr Lew Meyer, AFBAF; Col Phil Marr, Col Roberts and Col Keffe, representing Hq USAF (AFSSV); Capt McCartney, representing Hq AFSC; Mr Fred O'Green, representing LMSC; and myself.
3. The proposed Agena D Component Improvement Briefing, together with a Status Briefing, prepared to be given to the Unmanned Launch Vehicle Panel of AACE on 28 June by LtCol Keffe, Hq USAF, was reviewed by MajGen Ritland. He made numerous constructive recommendations concerning the sequence and technique of presenting the Component Improvement Briefing to Dr Charyk and approved the program for presentation.
4. The meeting with Dr Charyk was convened at 1600 hours. After a brief introduction by Col Keffe, who outlined the purpose of the briefing as "to satisfy the SAFSP directive for a review by Dr Charyk of the proposed Component Improvement Program and his subsequent approval or disapproval thereon prior to funding or proceeding contractually," Col Kucheman was then introduced and initiated the briefing by first giving a brief status report of the progress made on the Agena D Program from 17 January to date. This status briefing indicated that (a) the first 4 Agena vehicles had been delivered on or ahead of schedule; (b) that AD-1 was on the launch pad at Vandenberg AFB, scheduled for launch on 27 June (one day ahead of schedule); (c) and that all components of the Agena D vehicle would have passed formal qualification tests prior to first launch. Dr Charyk seemed extremely pleased with the progress that had been made on the Agena D to date.

5. It was then explained that the title of the Component Improvement Program was a misnomer because the funds which would be requested during the course of the briefing covered not only the Component Improvement requirements but also the fund requirements for all Vehicle General Support at LMSC. The material presented is outlined on the briefing charts referenced below and was presented in the sequence delineated: 1, 2, 3, 45, 46, 47, 48, 49, 5, 4, 6, 7, 8, 9, 10, 13, 14, 15, 17, 18, 38, 39, 40, and 41.

6. The aspects of the briefing which concerned the management philosophy and approach recommended by SSD were thoroughly discussed. The discussion among Dr Charyk, Mr Imiric, Col Keeffe, and myself, which clearly identified the General Engineering Support requirements as "that amount of effort necessary at LMSC, Sunnyvale, to accomplish sustaining engineering support of the Flight Test Program and the Component Improvement Contract". At the point in the presentation when the specifics of the Component Improvement items were to be described (Charts 17 and subsequent), Dr Charyk acknowledged that he understood what we were attempting to do and deferred detailed discussion of each of the items in the interest of conserving time. Mr. O'Green was then excused from the meeting, and the financial requirements summary and recommendations were presented (Charts 38 and subsequent).

7. Throughout the briefing Dr Charyk and Mr Imiric discussed and elaborated on the approach recommended by SSD, Hq AFSC, and Hq USAF. He specifically directed that the following actions be taken:

a. That all fiscal requirements for Reliability Tests which supported the Production Contract be broken out, identified with the Production Contract, and costed thereunder.

b. That the Component Improvement items, together with any funds which were earmarked for follow-on R&D, be broken out, identified as Advanced Development per se, and funded as a separate Agena D line item. Dr Charyk commented to Mr Meyer that as long as this item did not greatly exceed \$5 million, he felt that funds should be made available to permit continuation of this activity.

c. He further directed that all of the General Support fund requirements be prorated among using programs by increasing the unit cost of the delivered product -- Agena D.

8. The meeting was adjourned at 1740 hours.

4
5
6
7
8
9. Immediately after the meeting, I proceeded with Mr Meyer to his office and there I discussed the financial status of the Agena D. I made known to Mr Meyer the urgent need for the 1 July increment of funds for both the -21 and -68 contracts, pointing out that I would be out of funds on the -21 contract on 1 July and on the -68 contract, approximately 17 July. Further, I described to Mr Meyer the effects of the recent directives from Hq AFSC and Hq USAF which changed the basis of funding for the Agena D. Mr Meyer countered my comments pointing out that it was his belief that SSD, in submitting their Financial Plan for all programs for FY 63, had included a fund requirement of \$2.1 million per Agena D. Should this information be factual, there should be no fund problem generated in following Mr Hoover's directive next year.

10. Following this discussion, Mr Meyer explained his remaining problem in clearing the reimbursable fund concept, and I placed him in direct contact with Mr Griska (SSH) and Maj Jack Albert (SSV) because his proposed solution involved utilization of Agena B funds.

HENRY B. KUCHEMAN, JR.
Colonel, USAF
System Program Director for Agena

~~CONFIDENTIAL~~

HEADQUARTERS
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
ANDREWS AIR FORCE BASE
WASHINGTON 25, D. C.



188

REPLY TO
ATTN OF: MSFA

SUBJECT: Agena D Presentation, 25 June 1962

27 JUN 1962

TO: Memorandum for Record

1. Col Kucheman (SSD) briefed the following Hq USAF personnel at 1600 hours on 25 June 1962 on the Agena D Program:

Dr. Charyk
Mr. Imirie
Mr. Myers

Col Marr
Lt Col Keeffe
Col Roberts

Col Kucheman was assisted by Mr. O'Green (LMSC) during the technical part of the briefing. Attached are copies of the briefing charts used by Col Kucheman. The briefing was approved by Gen Ritland before it was presented to the Pentagon.

2. Col Kucheman gave a very brief status of the program to date. Dr. Charyk was "very pleased with the progress of the program" in that vehicles have been "clean" and deliveries were slightly ahead of the original schedule. Mr. Imirie was pleased with the contract status of the R&D contract.

3. The purpose of the presentation was to obtain Dr. Charyk's approval of the concept of operation during the follow-on production contract of the Agena D program. Dr. Charyk was very concerned as to how mission peculiar items would be handled. Evidently his prime concern was any mission peculiar items that were used by more than one program should be standardized and become optional equipment. Col Kucheman satisfied his concern with exception of the payload area. Dr. Charyk used the "Life Boat" program as an example. He said he did not want every program "having a different Life Boat" and expressed a desire to have the Agena D Program Director monitor the mission peculiar equipment to assure the basic purpose of the Agena D program of standardization was not endangered. Col Kucheman noted the point and stated this could result in a change in SSD and LMSC organization.

4. Dr. Charyk approved the need for component improvement and general support of the Agena D Program. He stated the component improvement program and the associated reliability program should be funded as a line item of the Agena D Program. Estimated cost of these programs is about \$5.5M. The remainder of the proposed program cost concerning general engineering, reliability support for

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

MILITARY SPACEPOWER

~~CONFIDENTIAL~~

69-102954

~~CONFIDENTIAL~~

the production contract, the Santa Cruz Test Base, the Development Test Lab, M. L. T. Support and AGE Design will be included in the basic cost of the Agena D to the using programs. (Informally, Col Kucheman advised that he understood that, based upon LMSC's fixed price quote, the vehicle programing cost to using programs of \$1.3M is sufficient to absorb these extra costs, therefore reprogramming probably will not be required.)

5. Mr. Myers pointed out to Dr. Charzyk that a precedent was being set for the Standardized Atlas. Dr. Charzyk confirmed this and indicated that this should be the "pattern for all SLV's." At the close of the meeting, Dr. Charzyk again stated he was pleased with the program and felt the primary objectives of the program were being accomplished in accordance with original schedules and costs.

Forest S. McCartney
FOREST S. MCCARTNEY

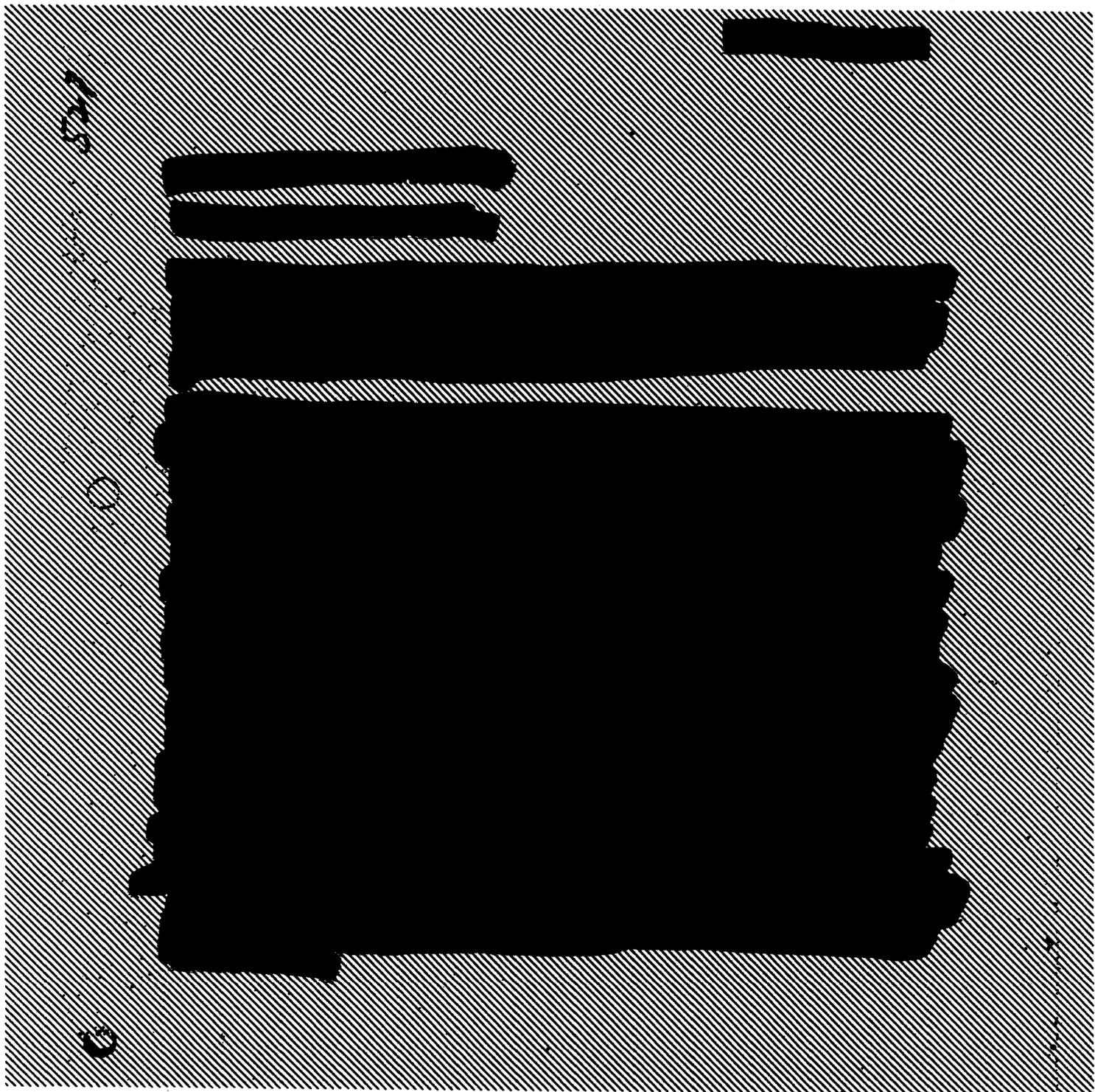
Captain, USAF
Office, Manned Space Flight

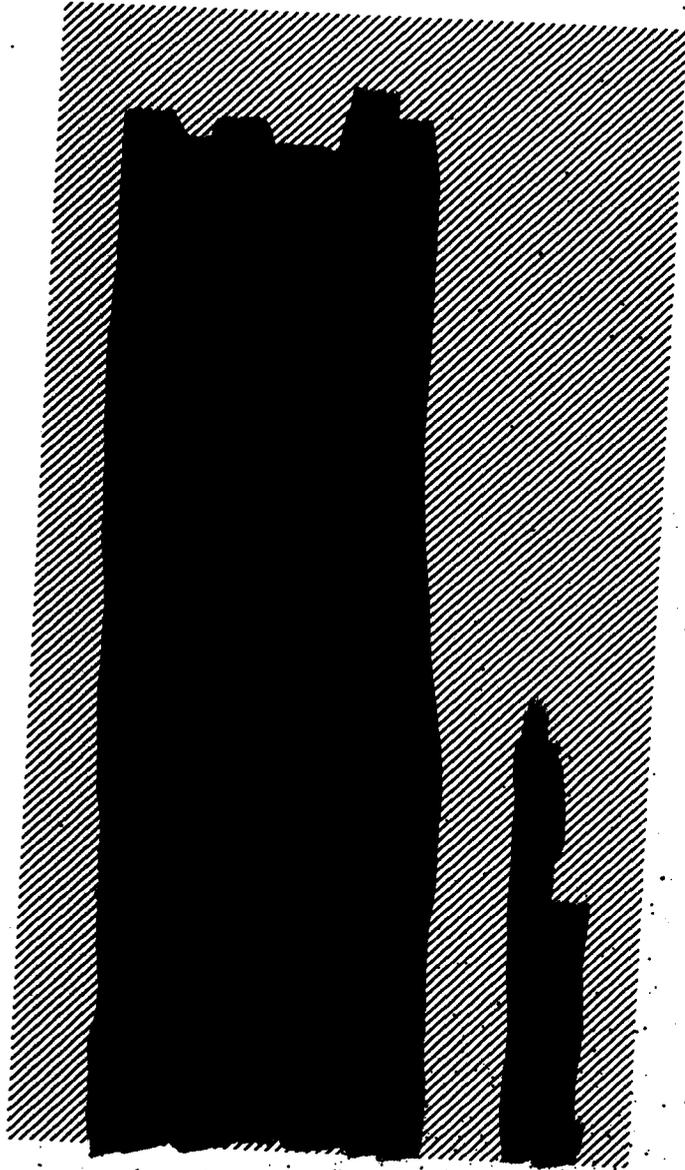
1 Arch
Agena D Briefing Charts

2
~~CONFIDENTIAL~~

10-10395

189





Q

8-10

Q

Q

4508

88/1815Z JUN RUZAF
PENDING APPROVAL OF HCP PROJECT.
YOU WILL BE ADVISED. P-313 FUNDS WILL NOT BE COMMITTED.
P-321 FUNDS HAS BEEN FORWARDED TO HQ USAF FOR APPROVAL.
3500. THE AIR FORCE FORM 161 FOR 1.325 MILLION FY 1963
PLANS DATED 27 JUNE 1962, PARTICULARLY ATTACHMENT 3 CLASS
GCC LETTER, SUBJECTS FT 1953 OIR AND HOTEL (AF-520) FINANCIAL
CONFIGURATION. P-690 FINDING WILL BE IN ACCORDANCE WITH
WITH PLANS TO MODIFY AIR LAUNCH COMPLEX 14 TO ATLAS/Agena
REFERENCE YOUR MSG 22-6-31. YOU ARE AUTHORIZED TO PROCEED
ACTION FOR S3A20
INCLAS NSFA 28-6-61.

BT
TO SSO LOS ANGELES CALIF
FM NSFA ADDRESS AFB MS
P 0713Z
BT
DE RUZAF 93
PP RUZAF
CZCZ15972CJ32416

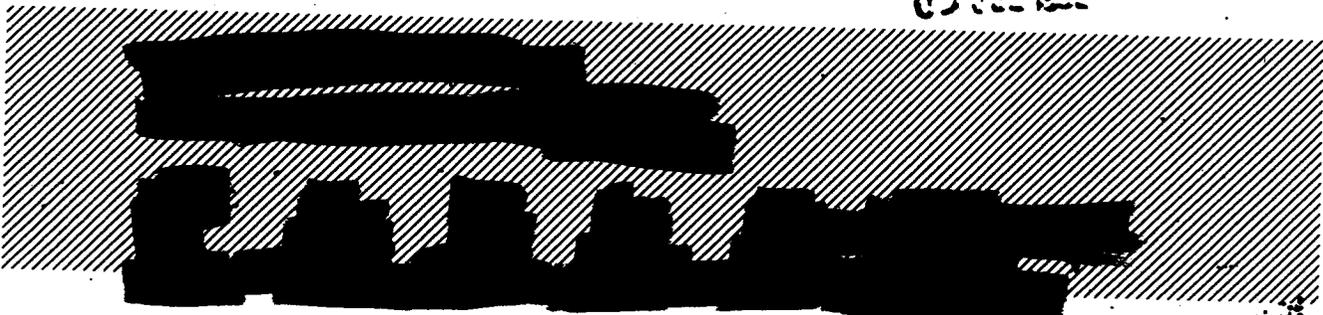
190
Lagay
28 June 62

W. Dalton

~~CONFIDENTIAL~~

11

03 JUL 62



1. Disclosed is the latest revision of the weight status of Agena D operational equipment. You are reminded that in all program performance analysis, the committed weight should be used. The purpose for transmitting the status report is only to permit evaluation of progress toward equaling or bettering the committed figure.

2. An indication of the technique of operation in Agena D is that this letter is the official notice that the basic Agena D committed weight has been reduced. For future efforts, the following committed weights are to be used:

a. Forward Section	268.0 $\frac{1}{2}$
b. Aft Section	443.0
c. Sensor Doors	12.0
d. Propellant Tank Assembly	305.0
e. Propellant Tank Fairings	15.0
f. Booster Adapter	290.0
g. Telemetry Module	35.0
h. Guidance Module	97.0
i. Launch Base Installed Equipment	134.0
Total Basic Agena D	1599.0 $\frac{1}{2}$

No change is made to the sequence or level of "dropped" weights. The reduction in basic weight is made at this time due to production history

document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794, the transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

SSEDA

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

SSI-976

Capt Fiebelkorn/jrn

2 July 1962

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

in which vehicles have been carrying loads in excess of permitted weights. Further changes may be made as sufficient actual weights are accumulated to justify such action.

ROY O. SMITH
Colonel, USAF

HENRY B. ROCHMAN, JR.
Colonel, USAF
System Program Director for Agana

1 Atch
Agana 2 Detail 1st Status,
dtd 1 Jan 62 (UNCL)

531

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794, the transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~CONFIDENTIAL~~

192

HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Air Force Unit Post Office, Los Angeles 45, California

REF: TO
ATTN: ON SSVZO/Capt Taylor/SSD 3161/1et

SUBJECT: Conversion of AMR Complex 14 to an Atlas/Agema Configuration

JUL 05 1962

TO: SSSHAG

1. Your office has been furnished copies of AFSC messages MSFA-12-6-23 and MSFA-28-6-61, which stated:
 - a. AF will fund for the modification of AMR Complex 14.
 - b. SSD has the authority to proceed with plans for the modification.
2. Funds necessary for this conversion have been requested through DCCB. These funds, though not yet available, are expected in the near future.
3. Request your office take necessary action to obtain appropriate direction and contractual coverage for Agema tasks associated with this conversion.

MARTIN KAHLE
Major, USAF
LEONARD D. PARSONS, JR.
1st Colonel, USAF
Chief, Operations Division
Dir, SEV XII (Atlas)

Copies to:
SSVZR
SSHL
DCLP-1
DCCB

5-3-1
#4 ch 2

ATCH #1

~~CONFIDENTIAL~~

193

JUL 09 1962

SSH

Agana D Configuration Control

SSS
SSSH
SSSD



ESVZ

6555 Aerospace Test Wg (VZZ)
6595 Aerospace Test Wg (VZZ)

1. In accordance with standard practice, SSS will set up in the near future a system of configuration control on the Agana D vehicle. These controls will continue on the vehicle throughout its life as well as those equipments installed under contracts controlled by SSS. Program peculiar items and the payload installed under program office contracts will remain the responsibility of the respective program office. It is obvious that the above procedure is mandatory in order that the Agana vehicle remain a standard production article and maintain a high level of reliability.

2. The control of EJA's after DD 250, a forerunner of configuration control, will be immediately discontinued and existing records destroyed. Program offices still using the Agana D may wish to continue this type of operation. If so, and existing records are desired for their files, SSS should be notified by 20 July 1962.

SIGNED

WALTER L. SCHNEIDER, JR.
Colonel, USAF
System Program Director for Agana

194

SSR

11 JUL 1962

Configuration Control of Agena D

534

SSZB	SSZNA
SSZC	SSZEI
SSZD	SSZX
SSZI	SSVZR
SSZK	

1. The SFD for Agena is establishing configuration and control procedures, as outlined in AFSCM 375-1, on the Agena D vehicle.
2. The base-line configuration and future changes to the vehicle will be of direct concern to your program. Therefore it is essential that you have representation on the Configuration Control Board.
3. SCB initial operating procedures are presently being written and will be forwarded to you at an early date. It is hoped that within a reasonable length of time, procedures will become firm and more or less routine resulting in a minimum active participation reverting to a review function.
4. It is requested that the name, rank, serial number, of your designated member and alternate member be forwarded to Lt Col G. L. Ausrecoh, RDCg H-1 Room 2649, Ext 1951 by 16 July 62 and confirmed in writing so that applicable orders may be cut.

RDG D. 1962
14, Colonel, USAF

for
EMORY D. MCGHEE, JR.
 Colonel, USAF
 System Program Director for Agena

194

SSS

11 JUL 62

Configuration Control of Agena D

SSZC	SSZJA
SSZC	SSZJI
SSZD	SSZK
SSZL	SSZLR
SSZM	

1. The SFD for Agena is establishing configuration and control procedures, as outlined in AFSCM 375-1, on the Agena D vehicle.
2. The base-line configuration and future changes to the vehicle will be of direct concern to your program. Therefore it is essential that you have representation on the Configuration Control Board.
3. CCB initial operating procedures are presently being written and will be forwarded to you at an early date. It is hoped that within a reasonable length of time, procedures will become firm and more or less routine resulting in a minimum active participation reverting to a review function.
4. It is requested that the name, rank, serial number, of your designated member and alternate member be forwarded to Lt Col G. L. Auorbach, Bldg H-1 Room 2649, Ext 3951 by 16 July 62 and confirmed in writing so that applicable orders may be cut.

ROY O. SMITH
 Lt Colonel, USAF

HENRY B. KUCHEMAN, JR.
 Colonel, USAF
 System Program Director for Agena

195

W.F.

CCN STATUS CONTRACT APT 61-21 AS OF 12 JULY 1962

535

- CCN No. 1 Issued 1 May 62.
 Title: Development of Reference Module Utilizing
 the ATL ~~Model 23-1000~~.
 Estimated cost: \$228,000.
 Proposal received.
 Negotiation not anticipated before 1 August.
 We are attempting to expedite.
- CCN No. 2 Issued 1 May 62.
 Title: Midas Reliability Redirection
 Estimated cost: \$490,000.
 Same status as No. 1, above.
- CCN No. 3 Issued 1 May 1962.
 Title: Discoverer Research Flight Test to Obtain
 Infra Red Data.
 Estimated cost: \$106,000.
 Awaiting contractor's proposal.
- CCN No. 4 Issued 3 May 62.
 Title: J-900 Elimination, IRP, and Flight Control
 J-Box Patch Board Block Revisions.
 Estimated cost: \$60,000.
 Awaiting contractor's proposal.
- CCN No. 5 This CCN number was issued on or about 24 May 62
 and pertains to adapter extension modification which
 is covered by the contractor's ECP 21-12. No CCN
 has been issued as yet, however, this proposal is
 presently being reviewed by Captain Fiebelkorn.
- CCN No. 6 Issued 26 Jun 62.
 Title: Agena D Acoustic Noise Test.
 Estimated cost: \$46,050.
 Awaiting contractor's proposal.

✓

Discontinue 196
+ *File*
ND 4-1
JUL 12 1962

ISZDA/T-2j Moore/223 4061

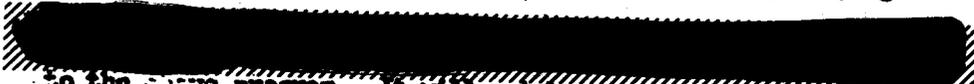
Program Designation Change

ISZGT

CS7X

L.R.
J.D.J.

1. This ~~is~~ *is* supercedes all previous correspondence and various
instr. ~~concerning~~ *concerning* the designation of the subject program.



to the CS7X program. It will not be necessary to correct prior
correspondence or documents. However, cross reference of the two
numbers will be avoided where possible.

FRANK S. BUZARD
1) Colonel, USAE

C. L. BATTLE
Colonel, USAF
Director
Program 698EX

*I called Maj Moore 15 Aug 62
He states this is not classified info
L.C.F.*

~~CONFIDENTIAL~~

foreign location and personnel who will not require the added
expense of overseas pay.

The Commission SEH recommends the first simple step be that of
flying foreign developed payloads. And second, that in the practical
and more or less selfish interests of the U.S. that foreign powers
be encouraged in the unglamorous expensive area of tracking and
communications systems that will be vitally needed in future years

SIGNED

HENRY J. MURKIN, JR

Colonel, USAF

System Program Director for Agency

~~CONFIDENTIAL~~

198

~~SECRET~~

101

JUL 13 1962

648B Monthly Program Progress and Status Report
Period Ending 30 June 1962

AFSC (SCM) Col. Kadenberg)
Vandenberg AFB
A-104 25.13

1. The subject report, sixth of a monthly series, is submitted in compliance with Eq USAF request.

2. Reference is made to 648B Monthly Program Progress and Status Report for May, dated 14 June 1962. There is no change in Agena D storage requirements, launch schedules, production and delivery requirements, or procurement fund release schedules submitted with referenced report. Effort is currently underway to identify funding requirements for the Agena D contracts listed below in the brief resume of program status:

a. Vehicle milestone status

(1) R&D prototype. The basic contract for the Agena D provides for the design, development, test, qualification and delivery of twelve prototype vehicles. It is a program objective that the flight experience gained during the launch of these prototypes will be fed back into the production of subsequent models. Primary emphasis is being placed on the thorough and critical analysis of all flight data, successful or unsuccessful, of at least the initial four vehicles. This is being accomplished for the first flight. As of this report, the first five Agena D vehicles have been accepted by the Air Force. AD-1 was successfully launched on 27 June. AD-2 has been delivered to Vandenberg AFB and is undergoing preparations for launch on 29 July. AD-3, -4, and -5 are in varying stages of modification to the Discoverer configuration or in systems test in Building 104, Lockheed, Sunnyvale. Vehicles AD-6 and -7 are in the final phases of Agena D vehicle acceptance testing and are scheduled for delivery to the Air Force on 17 and 24 July, respectively. AD-8 has been assembled and is in 'initial rack test'. AD-9 through AD-12 are approximately 50% through the manufacturing process. This latter group of vehicles has an extremely critical delivery schedule which must be carefully monitored to avoid the possibility of slippage. The last vehicle under contract (AD-12) is scheduled for delivery to the

519
SA used page

If inclosures are withdrawn (or not attached) the location of this correspondence will be unchanged

SSH-965

~~SECRET~~

Air Force on 21 September. The real test of Lockheed's readiness for the production contract will be demonstrated during the month of August when for the first time, they will be required to process four vehicles through the usual systems test complex in approximately one-half the time per vehicle that they have demonstrated to date.

(2) Production schedule. The production rate has been established as four vehicles per month with the exception of November where it has been reduced to three.

b. Contractual milestones

(1) Basic R&D contract AF 04(695)-21. This is the first CPI7 contract between the Air Force and DSC. It was definitized and issued on 1 May with a scheduled completion date of 30 November, except for the negotiations of CCM's occasioned by changing requirements in other programs, i.e., the addition of the 239A reliability program when they dropped it for fund considerations, the 'backup' ATL scanner for Discoverer, etc., and the acoustical test on the structure which occurred subsequent to the definitization of the cost proposal. It is mutually agreed between Lockheed and the Air Force that this contract will be terminated on 30 November.

(2) Production contract AF 04(695)-68. This is the fixed price contract which is to be negotiated utilizing the 'production package' consisting of drawings, specifications and procedures evolved under the AF 04(695)-21 contract for the procurement of 'chinese copies' of the Agena D. The cost proposal for this contract was received on 22 June 1962. This proposal is currently under study by the AFSSD staff. Fact findings are scheduled for 26-27 July with negotiations scheduled to begin as soon afterward as the Air Force pre-negotiation position can be formulated and approved. In general, this proposal has impressed the Program office as being responsive, more thoroughly done than has been our experience in the past, and offering a total unit target price for hardware which is considerably below the DSC ROM quote of 1.1M bantered about last November. AFSSD analysis thus far indicates that even this price has some negotiable aspects regarding wage rates, material charges, etc. Beyond these financial aspects it is mandatory that through the negotiation process a thorough understanding be established with DSC, Sunnyvale, concerning the intent and procedures which will govern the administration of this type contract.

(3) Advanced Development contract AF 04(695)-191. This contract will provide for general engineering support of the Agena D and component improvement as necessary. On 25 June the Component Improvement Program was presented to General Ritland and Dr. Charyk and approved. AFSSD has been advised by Mr. Lew Meyer, HQ USAF, that this effort should be called 'Advanced Development', and that 5.4M dollars is being added to the FY-63 Agena D line item to permit the R&D aspects to be pursued.

If inclosures are withheld or not attached, the classification of this correspondence will be Secret

duplication among them it has been proposed and accepted that three contracts be combined into the booster program contract. Better than one-half of the activity required to support each of these programs is encompassed by the responsibility that will be assigned to the Agena D Program Director under 'Plan A'. The remaining portion of Lockheed's support which these programs will need, i.e., design, development, test, qualifications and manufacture of program peculiar hardware and direct mission support as required, will be included in the contract and arranged in such a manner that it will be administered directly by the appropriate program office. In this manner maximum utilization of the IMSC vehicle organization can be insured. To date Program 621A has reached the handshake stage with a supplemental agreement (which will convert the current proposal to the format discussed above) scheduled for negotiation on 3 August. It is contemplated that Program ~~621A~~ will adopt this contractual approach during the course of negotiation.

(5) Launch services contracts. In order to fix the responsibility for all Agena problems under one organization, the SPD for Agena will take over the responsibility for the FMR launch services contract and as soon as it is negotiated, phase into the FMR contract. The ALR contract is scheduled to be definitized in early September, while the currently existing FMR contract will not require renegotiation until January 1963.

(6) Maintenance and repair contract. To round out the responsibilities of the Agena Program Director, it is proposed that maintenance and repair contract and possibly an AGE contract be written on a CFF or call basis.

c. Major Technical Milestones.

(1) Essentially the Agena D has reached the frozen design status. Within the next 30-45 days the 'complete' production package should be available. At this time, sufficient information is on hand to permit Lockheed to submit the fixed price proposal. The Lockheed Program Director has accepted the obligation to study in detail the performance of the initial four flights, in order to evaluate the effectiveness of the design and establish confidence limits for the equipment. It is contemplated that any marginal performance or potential marginal performance will be identified as a result of this activity and necessary corrective action cycled back to update the 'production' package. AD-9's delivery and flight will constitute completion of the development prototype. This vehicle represents the final configuration with the strengthened forward and aft equipment racks and the addition of the Type V telemetry and Mark X inverters.

(2) Configuration Control. Configuration control is a new task for Space Systems Division personnel. It is being established

If inclosures are withdrawn (or not attached) the classification of this correspondence will be Unclass

SSH-985

~~SECRET~~

for the first time with the Agena D program and should become effective 15 September when the Air Force Agena 2 Configuration Control Board assumes the responsibility from the IMSC Program Director. Our staff for this effort at the present time consists of two officers. In all probability it will become necessary to augment this capability once the magnitude of this operation is known and understood.

3. This report shows Agena D status through 6 July 1962, with significant milestones through 22 December 1962.

SIGNED

HENRY B. KUOHEMAN, JR.
Colonel, USAF
System Program Director
for Agena

4. Atch
1. 64EB Program Progress Report (2 cys)
 2. Prog. Milestones (C) IMSC A047672 (2 cys)
 3. Major Development Milestones (2 cys)
 4. Critical Milestones Remaining (S) (2 cys)

Copy to: Hq USAF (AFSSV-EQ)

SSH-485

If indexes are withdrawn (or not attached), the classification of this correspondence will be *Unclass*

199

JUL 18 1962

SSH

Preliminary Impact Evaluation of Impending Aerospace
Industry Strike on SSD Programs (Report Control Symbol (RCS)

AF-XDL-N2)

SSKR (Mr Montgomery)

Attached hereto is a Strike Impact Report for Lockheed Missile &
Space Company as it effects SSH Contracts AF 04(595)-21 and
AF 04(695)-68.



HENRY B. KUCHEMAN, JR.
Colonel, USAF
System Program Director for Agency

1 Atch
Rpt AF-XDL-N2

SPACE PROJECT QUESTIONNAIRE

L/C AS 34699-21 and -69

1. Programs: Agena D is in support of the following programs:



Prime contractor is:

**Lockheed Aircraft Corporation
Lockheed Missile & Space Company
P O Box 504
Sunnyvale, California**

Major subcontractors:

- a. Bell Aerosystems Company
Bell Aerosystem Corporation
Buffalo 5, New York**
- b. Telecomputing Corporation
Whittaker Controls & Guidance Division
9551 Comago Avenue
Chatsworth, California**
- c. Lear Incorporated
Romco Division
Abbe Rd
Elyria, Ohio**
- d. Minneapolis-Honeywell
Aeronautical Division
Minneapolis, Minnesota**
- e. Barnes Engineering Company
30 Commerce Street
Stamford, Connecticut**

L. Galton Industries, Inc.
Engineering Magnetics Division
10341 Cerise Avenue
Hawthorne, California

2. Anticipated impact (calendar days lost to schedule) if strike occurs on 26 July, based on:

a. Plant operations.

(1) Lockheed's present position is that with non-union personnel, plus other management actions, the present schedules can be held. If a change to this thinking should occur, Lockheed will file an official notification.

(2) The official Lockheed position reflecting the above is being forwarded by separate letter to this office.

b. Test Site and Launch Schedules.

(1) See remarks as above.

3. Anticipated cost to program due to strike (direct and indirect):

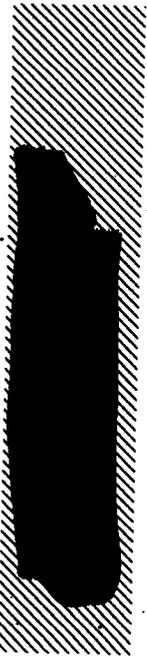
a. Based on information presented in 2 above, no program costs increase is projected at this time.

4. Action being taken or contemplated to minimize program delay in the event of a strike.

a. None in view of the above.

5. General remarks:

a. None.



100

13 Test Corp (SCLC, C. J. Lantz)

1. The X-15 rocket engine has completed PFR as described in attachment 1 and should be re-designated X1581-2A-9. Minor changes in the engine for the Agena D configuration, chiefly a change in turbine exhaust duct design, are outlined in attachment 2. To insure positive identification of Agena B and Agena D engines, Part 1, considered completely applicable to the -11 (Agena D) engine; no additional testing is required.
2. Under contract AF04(675)-157 preliminary studies and tests began in May, 1962 to modify the starting system of the X-15-2A-9 to provide multiple starters for the GENIE target vehicle (Agena). The starting system will be modified to remove the present cold start test cell configuration and to provide starting by direct initiation of the primary propellant (UHM and UHFA) in the gas generator. The basic turbo-pump and thrust chamber will be unchanged. The previous relationships between the Space Systems Division, Lockheed Missiles and Space Company (LMSC) as prime contractor, and Bell Aerosystems Company as engine subcontractor are still established for this development. Preliminary Flight Rating Tests on the modified engine are scheduled for completion in June, 1963. This multiple restart engine should be designated X1581-2A-13. The immediate application of this engine will be to provide the required mission capability for the GENIE target vehicle, but it is conceivable that the modified engine might become the standard engine for the Agena D for all programs. A model specification, LMSC 1414463, covering the requirements for the X1581-2A-13 rocket engine will be prepared by LMSC.

2. This office is requested to take the necessary action to reply for the designation actions as required by paragraphs 2 and 3 above: X281-24-7 (completion of X281), X281-24-11 (Agema D version), and X281-24-13 (multiple restart engine for Gemini target vehicle). All engines remain in "development" status.

FOR THE COMMANDER

SIGNED

EDWARD F. SUMM
Lt Colonel, USAF
Chief, Vehicle Engineering Div

2 Atch
1. AFDC Form 81A
2. Agema B - Agema D
Rocket Engine Differences

SSMAA-2/mst

2
19 Jul 62

101



JUL 1962

Lockheed Aircraft Corporation
Aircraft and Space Company
Attn: T. Keller (60-04)
Post Office Box 504
Palmdale, California

The SDD has directed under Contract A304(695)-129 the development of a multi-start engine capability for the Project Gemini-Agena target vehicle. This will be accomplished by modification of the current Agena-D engine, the X181-2A-9 (Bell Aerosystems Co. Model 8095) after completion of development and certification of a satisfactory preliminary flight testing test. The result of this development program will be a set of Air Force dash number. A set program is being planned and an engine performance reliability equivalent to the current Agena-D.

1. It SDD has declared in its letter to SAC/MAJor Albert dtd 20 Jul 1962 to Mr. L. E. Post that "The multi-start engine with the simplified start features will be selected so that it is mechanically compatible with the basic Agena-D structure. This engine will be considered as alternate basic for the Agena-D program resolution of its reliability as the replacement for the X181-2A-9 (8095) as Agena D engine."

3. In addition to being mechanically compatible with the basic Agena-D structure it is required that multiple-start engine performance be compatible with all present DOD and NASA space missions using the Agena-D stage vehicle. In this connection several performance questions arise:

- a. For all programs, DOD and NASA, what is the total mission initiation requirement for engine starting?
- b. What is the minimum time duration requirement to achieve 3.e?
- c. What is the limitation on repeatability?

4. The multi-start engine development program should be tailored to satisfy the requirements as determined by paragraph 3 above.

5. The above information should be provided Hq SCD (SSHA) by 15 August 1962.

SIGNED

EDWARD F. BLUM, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agasa

Cy to: IMSC (F.W. O'Green, Dept 60-03)
IMSC (J. Plummer, Dept 60-01)
IMSC (H. T. Lucian, Dept 62-90)
IMSC (L. R. Viggiano, Dept 62-44)
IMSC (R. D. Koarton)
SWZR (Maj Albert)
AFRO/IMSC (Col Coyles)

SAF ... 11/23/68 9466, ... 1033

Report for Type Designation, Agen D Vehicle ... 11 27 62

11/11/68
11/21/68
11/23/68

1. The following information is provided in support of a request for ... for the Agen D vehicle.

c. The Agen D vehicle is capable of performing a variety of space maneuvers and is capable of attaining a wide range and variety of orbital and escape trajectories. It can perform as an intermediate stage booster, an orbital vehicle, or as a space probe. An engine restart capability enables the Agen D to achieve elliptic, circular orbits, or to make the necessary changes in space. The vehicle can be programmed to accomplish attitude changes, and its attitude control system, which functions actively or reactively, provides vertical as well as horizontal stabilization in certain flights. Alternates also exist for the Agen D to use either a ... or an Atlas as a first-stage booster.

b. Vehicle systems are composed of guidance, propulsion, electrical power, attitude and control, and electrical control (command and control) equipment.

(1) The spacecraft houses and supports the various vehicle systems. It is divided into a forward section, a propellant tank section, an after section, and a booster adapter section. Incorporated into the spacecraft are the propellant tanks, gas storage vessels and the plumbing, cabling, and the telemetry required for the Agen D systems and components.

(2) The propulsion system consists principally of a rocket engine in its propellant-flow and electrical-control equipment, and the propellant system necessary to support the rocket engine operation. The Agen D uses a liquid bi-propellant power package with a single combustion chamber.

(3) The electrical power system furnishes made electrical power sources and distribution circuits. The system supplies electrical power from primary batteries mounted externally within the vehicle. Electrical system components also modify or alter electrical power supplied by the batteries, and distribute this power through appropriate harnesses to the various components.

/s/ Millie/jrn

3 July 1962

(4) The Agma D guidance and control system performs vehicle guidance, attitude control, and flight programming functions necessary to accomplish the program mission. The guidance and control system includes pneumatic, hydraulic, and velocity controls, sequence timing, and the ability to accommodate a variety of programmed operations.

(5) Vehicle-borne communications, command, and tracking equipment is utilized for gathering and transmitting vehicle performance data for vehicle command functions, and for vehicle tracking and acquisition. The equipment provides radio-frequency data-links to monitor the operating conditions of the vehicle equipment. The system controls vehicle operations by receiving and decoding command messages from the ground stations. Additionally, the system includes units that receive and transmit signals to ground stations for vehicle tracking purposes and for computing the vehicle range and location.

2. For your information, previous models of this vehicle, including payload, powered under the WS-117L Program were designated as XRG-81.
3. Request that a type designation for the Agma D vehicle be assigned, and that SCD (SER) be advised accordingly.

FOR THE COMMANDER
SIGNED

DEAN L. KENNEDY
Major, USAF
Chief, Requirements & Programming Office

#198

55-203

INCL 4220 V SNON 7052 8-1-62 315 P

TO LOCKHEED ACFT CORP D J GRIEDON MGR SATELLITSYSTEM PLANT 1 BLDG 10667
 SUNNYVALE CALIF

FROM DOUGLAS AIRCRAFT CO INC T D SMITH A2-200

ATTN F A SHELLY DEPT 53-18 MR D KELLEY SUNNYVALE CALIF
 A K J GRAY DEPT 62-60 SUNNYVALE CALIF
 H A PAULDEN DEPT 62-60 SUNNYVALE CALIF
 E E CROWTHER DEPT 62-60 SUNNYVALE CALIF
 J CLAUSS DEPT 72-25 BURBANK CALIF LMSC

ATTN AFSSD SSVXE INGLEWOOD CALIF

ESZ AUG -1 B. 10667
 INFO

IN REPLY REFER TO-- A2-260-S/WT-26 ATTN G C MCGEACHY
 SUBJECT. PRELIMINARY WEIGHT DATA FOR DSV-2C/AGENA, TOTAL VEHICLE
 THE FOLLOWING DATA PRESENT PRELIMINARY WEIGHT, CENTER OF GRAVITY
 AND MOMENT OF INERTIA DATA FOR DSV-2C/AGENA, TOTAL VEHICLE. THE
 APYLOAD DATA WERE OBTAINED FROM LMSC TWX A047376, DATED 6-2-62,
 FOR PAYLOAD 622A, THE DRY BOOSTER DATA ARE PRELIMINARY. THE PRO-
 PELLANT LOADING IS COMPUTED USING NOMINAL PERFORMANCE VALUES FOR
 THE MB-3, BLOCK II ENGINE. THE DSV-2C BOOSTER USES RJ-1 FUEL WITH
 AND ASSUMED DENSITY OF 53.17 LB/FT³. A DENSITY OF 70.80 LB/FT³ IS
 ASSUMED FOR THE OXIDIZER. THE PRESSURIZATION GAS AND LUBE OIL
 VALUES ARE CALCULATED USING NOMINAL RATES AND ARE BASED ON THE
 BURNING TIME OF THE NOMINAL MB-3, BLOCK II ENGINE.

SOLID PROPELLANT BOOSTER BURNOUT OCCURS AT 39.5 SECONDS AND SOLID
 PROPELLANT BOOSTER SEPARATION OCCURS AT 65.0 SECONDS. WEIGHT,
 CENTER OF GRAVITY AND MOMENT OF INERTIA DATA ARE INCLUDED FR THE
 BOOSTER AT VERNIER ENGINE BURNOUT, ASSUMING THE MAIN TANK RESIDUALS
 TO BE IN A FREE-FLOATING STATE.

ITEM	WEIGHT- LBS
	RJ-1 FUEL
TOTAL PAYLOAD	17,391
DRY WEIGHT OF LIQUID BOOSTER	6,846
TRAPPED PROPELLANTS	423
PRESSURIZATION GAS	434
UNUSABLE LUBE OIL	53
RESIDUAL PROPELLANT /0.4 PCT RESIDUAL/	400

VEHICLE AT STAGE I VERNIER ENGINE BURNOUT	
/156.68 SEC./	25,547
VERNIER PROPELLANTS BURNED	75

VEHICLE AT STAGE I MAIN ENGINE BURNOUT	
/147.68 SEC./	25,622
LIQUID PROPELLANTS BURNED /FROM 65.0 SEC. TO B. O.	
R U STILL THERE PL RGR RGR WHERE SHALL I START	
AFTER LIQUID PROPELLANTS BURNED ETC ...T	

VEHICLE AT STAGE I MAIN ENGINE BURNOUT	
/147.68 SEC./	25,622
LIQUID PROPELLANTS BURNED /FROM 65.0 SEC. TO B. O./	
LIQUID OXYGEN	37,220
FUEL	18,269
LUBE OIL BURNED	41
PRESSURIZATION GAS OVERBOARD	95

53047

VEHICLE AT MAIN ENGINE BURNOUT /0.4 PERCENT RESIDUALS/

53047

LATERAL CENTER OF GRAVITY 100.1
HORIZONTAL CENTER OF GRAVITY 136.7
VERTICAL CENTER OF GRAVITY 100.0
PITCH MOMENT OF INERTIA 515,407
ROLL MOMENT OF INERTIA 5,686.7
YAW MOMENT OF INERTIA 515,400
VEHICLE AFTER SOLID BOOSTER SEPARATION

LATERAL CENTER OF GRAVITY 100.0
HORIZONTAL CENTER OF GRAVITY 359.7
VERTICAL CENTER OF GRAVITY 100.0
PITCH MOMENT OF INERTIA 1,085,058
ROLL MOMENT OF INERTIA 6,743.3
YAW MOMENT OF INERTIA 1,085,053

VEHICLE AT SOLID BOOSTER BURNOUT

LATERAL CENTER OF GRAVITY 100.0
HORIZONTAL CENTER OF GRAVITY 380.8
VERTICAL CENTER OF GRAVITY 100.0
PITCH MOMENT OF INERTIA 1,239,381
ROLL MOMENT OF INERTIA 12,544.9
YAW MOMENT OF INERTIA 1,239,377

KF 10
4-6

VEHICLE AT LIFTOFF

LATERAL CENTER OF GRAVITY 100.0
HORIZONTAL CENTER OF GRAVITY 409.3
VERTICAL CENTER OF GRAVITY 100.0
PITCH MOMENT OF INERTIA 1,592,790
ROLL MOMENT OF INERTIA 36,468.3
YAW MOMENT OF INERTIA 1,592,785

ALL C. G.'S ARE IN DAGO STATIONS IN INCHES AND ALL MOI ARE IN SLUG-FT 2.

END ACK FOR 3 PLS SHON OUT
ACK FOR 3

204

AUG 1 1962

SSSKK/L. F. Becker/4115 R&D

AF C(695)-194, Authority for Non-Competitive Negotiated Procurement

SSE

1. AFPR 3-102 as revised stresses the importance of minimizing non-competitive procurements by requiring approval of such procurements at a level higher than the contracting officer.
2. The procurement plan for Agena D was presented to the Under Secretary of the Air Force; Assistant Secretary, Material; Assistant Secretary, R&D; General ~~Thompson~~; General Holzapple; General Farnsworth, General Mitchell; General Curtin; and various members of their staff. These presentations were made 17 November 1961 and outlined the basic concept for the Agena D; the ground rules for procurement and management of the program. The presentations were approved, and Lockheed Missile and Space Company was selected as the contractor.
3. The subject contract is a follow-on Agena D contract for long lead time materials to meet urgent delivery requirements established by the USAF, TWA AFSSV 66176 and TWA MSFA 17-7-25. It is therefore proposed to place this contract with LMSC on a non-competitive basis for the following reasons:
 - a. This contractor has created a capability to produce the Agena satellite vehicle, through continuous R&D effort over a period of five and a half years, and expenditures of many millions of dollars of public funds.
 - b. The delivery requirements of the Government for Agena D vehicles are such as to demand maximum program acceleration.
 - c. No other contractor could conceivably acquire the necessary know-how and production capability without the duplicate expenditure of large sums of money, and could not, in any event, produce the Agena D vehicle in the time required.
 - d. The contractor is presently producing the Agena D vehicle and this is a natural follow-on to the prior contract.
4. In view of the above stated circumstances, a competitive solicitation is precluded, since LMSC is the only known contractor that can meet the requirements.

SSSKK/es

H. P. BECKER

30 Jul 62

5. Authority is therefore requested pursuant to ASPR 3-102 to proceed with the subject procurement on a non-competitive basis.

E. F. BECKER
Contracting Officer

1st Ind (SSM/Col Fletcher/R2D 3084)

AGC - 1 1032

TO: SSMC

258
The circumstances outlined in the basic letter establish the impracticability of a competitive at this time for Agena D vehicles. Therefore, I concur in the plan for a non-competitive procurement to DKSC.

S. S. (ED)
HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

UNCLASSIFIED

205



THIS SHOULD APPEAR HERE

INFO: LOANED ASTROR CORP MISSILE & SPACE CO SUNNYVALE CALIF
BELL AEROSYSTEMS CO, NIAGARA FALLS, N.Y.

REF ID: 2-8-1

FOR AER, LT COL HARRISON. INFO FROM L. R. VIGGIANO, SAC, A. J.
MARSHALL. REF ID 19-7-20. CONFERENCE ON THE AGMA MULTIPLE
RESTART ENGINE TEST REQUIREMENTS, AIR FORCE DEVELOPMENT TEST TIME
REQUIRED JANUARY 1963 THROUGH MARCH 1963 WITH CELL BUILDUP BEGINNING
MID-DECEMBER 1962, RELIABILITY DEMONSTRATION TEST TIME REQUIRED
JUNE 1963 THROUGH NOVEMBER 1963 WITH CELL BUILDUP BEGINNING MID-MAY
1963. THIS EFFORT IS DESIGNATED USAF MODEL X1481-BA-13 AND SAC
MODEL 8247. TENTATIVE TEST COORDINATION MEETING DATE IS 31 AUG 62
AT AEDC.

1520
2 AUG 1962

SSHAA-2

James E. Wallace, 1st Lt., USAF/mst
3951 SSHA-2/mst 1 1

ROY O. SMITH, JR.
Lt Colonel, USAF
/11
EDWARD F. ELLI, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agma

UNCLASSIFIED
1 Aug 62

100-1/12-11111/321

03 AUG 1962

Agona Rocket Engine Designations

Lockheed Aircraft Corp
Hamilton 3 Space Co
Attn: L. R. Viggiano, Dept 62-14
Post Office Box 504
Sunnyvale, Calif

1. This office has recently taken action to request Air Force Model designations appropriate to the several Agona engine types and levels of development. Completion of P&E of the XRF31-B1-9 engine (BAC Model 6096) has qualified that engine for designation YRF31-BA-9. This designation was officially approved 27 July 1962 and should be used when referring to this engine.
2. Coordination on designation for the Agona D engine and the multiple restart engine has been informally accomplished, including allocation of designations by ASD. Formal approval is anticipated within 60 days. The designations allocated are YL 31-BA-11 for the Agona D engine and XRF31-BA-13 for the multiple restart Agona engine (BAC Model 6247).
3. All engines remain in "Development" status as defined by AFSC Reg 60-4.

SIGNED

EDWARD F. BLAIR, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agona

Cyc to: SCM
SSEAA
SGHR
ASFR (LMEC)
BAC (A. J. Marchese)

SSEAA-2//ast

2 Aug 62

2060

AFSC - 3 282

AFSC/AFSC/AFSC, 1955

Department for Vehicle Transportation

AFSC (AFSC/AFSC, Fleharty)
Lockheed Int'l & Space Co
PO Box 504
Sunnyvale Calif

65-8

1. This letter confirms our discussions on 9 and 10 July 1962
2. During the above discussions the requirement for the seventh transporter was considered marginal. While no turnaround analysis has been made for Supplement C, the present Data Table 136 Turnaround Schedule has been reviewed. There are eleven periods when seven transporters will be required.
 - a. Five transporters are required "on the road" for five days or more during the following months: August 1962; May, July, August, September, October and December 1963; and January, April and May 1964.
 - b. "On the road" time is defined by AFSC as the period of time required to load the vehicle, drive or fly to the designated installation, unload the vehicle, drive to Sunnyvale, and finally service the transporter for the next trip. Average "on the road" time obtained from logistics is three days for VAFB and two days for SCIB. A transporter remains at AFSC until the vehicle is launched or relieved by a second transporter making a delivery. The return trip time is then considered to be three days.
 - c. One transporter is permanently stationed at VAFB and SCIB. The requirement for a transporter at SCIB full time may not continue, but then a transporter would have to remain with the vehicle and an increase in "on the road" time would result.
 - d. The Turnaround Schedule does not include any contingencies for breakdowns, accidents, major overhauls, or modifications.
 - e. Transportation requirements at the Sunnyvale facility have not been considered in the analysis. It is the opinion of AFSC that the existing transporters should be put to maximum use by providing intra-building transportation. This policy will preclude the design and procurement of a new dolly in the immediate future.
 - f. No turnaround consideration has been given for transportation of program forward racks. These racks are growing to the point where it is logical to consider the transporter as a means of shipping.

3. Based upon the following considerations, AECB is of the opinion that **leased vans should be used only as an emergency mode for very short and closely controlled handling:**

a. There is no evidence available that a commercial van has been designed and tested in accordance with the mobility requirements of MIL-II-60099. The minimum effort which should be expended before shipping any vehicle in a van would be to compile a list of vans reported capable of meeting the vehicle requirements and then perform a stress analysis and tests in accordance with MIL-II-60099 on the shipping configuration for several of the vans. The action of a fifth wheel method of attachment between an air suspended trailer and a standard truck deserves investigation. Close control of the air suspension system is essential to consider the varying weights and CGs of items being shipped.

b. A vehicle holding dolly is required to support the vehicle in the van. When lashed down, it is an integral portion of the van. However, the dolly must be capable of absorbing all shock and vibration during the dock loading and unloading operations as well as transportation to and from the dock. A suspension system would, therefore, be required on at least one holding dolly for van use. Since loading docks are not available at each launch start and facility area, transportation problems could result. The proposed suspension system in the holding dolly might be sufficient for road transportation, but it is considered that probably a more sophisticated dolly would be required. An alternative method would be to unlash the dolly and then release the AECB as a land transporter for road transportation. The entire system of horizontal loading into vans is not considered as safe as the present lift concept.

c. Van transportation would probably necessitate the procurement of pressurization and HP heater cables. While it has been noted that a vehicle can go without pressure for seven days, a regulated source is necessary since a leak would develop and contaminate the system. An unregulated pressure source could cause damage to vehicle components and in an extreme case could cause propellant tank discharges.

d. No requirement exists for vehicle environmental control of higher quality than provided by the present transporters. Increased environmental capability can be readily met by the present transporters should such requirements become firm. Environmental control equipment in vans would have to be qualified before a vehicle is shipped.

e. While a van may provide better physical protection than the existing transporter, no evidence is available that the present protection is insufficient.

f. A permit should be present as all times whether the vehicle is in a school zone or on a city street.

5. Cancellation charges for the seventh transporter have not been defined. Indications are that approximately \$20,000 of this \$47,000 cost would be charged. Cancellation would result in an expense with absolutely no benefit.

4. After considering all of the above factors, AFSSD does not concur with the cancellation of the procurement of the seventh transporter. Therefore, it is requested that the contractor be directed to proceed with the fabrication and assembly effort of the transporter.

FOR THE COMMANDER

SIGNED

JAMES B. PEARSON, JR.
Lt Colonel, USAF
Chief, Agency AEC Division

Copy to:
USCIB (Capt Battsell)

207



REF ID: A52

5-62

SSR: 357 325 3-7
SAS: 330 333

1. The following Technical Manuals are now in process of development for the Agass D vehicle.

a. Operational Manual. This manual will be prepared in general accordance with Specification MIL-H-936A, and will cover the adjustment, alignment, test, hold limitations, and typical operation of the vehicle. The manual will contain test requirements; i.e., inputs and outputs at specific test points, but will not contain specific AGE application.

b. Electrical Diagram Manual. This manual will contain inter-related, inter-dependent electrical diagrams such as data flow diagrams, power distribution diagrams, pictorial (inter-component) cabling diagrams, etc.

c. Organizational Maintenance Manuals. Five manuals will be prepared, one for each functional system of the vehicle. These manuals will be prepared in general accordance with Specification MIL-H-936A, and will contain procedures for the removal and installation of selected modules/components in a system-installed configuration. No maintenance instructions for the repair of removed modules/components will be included. The following is a breakout of the organization maintenance manuals:

- (1) Guidance and Control Functional System
- (2) Communications and Control Functional System
- (3) Propulsion Functional System
- (4) Electrical Functional System
- (5) Spaceframe

d. Operation and Service Instructions Manual, Checkout Dolly. This manual will be prepared in general accordance with Specification MIL-H-7960A, and will cover operation and service procedures.

SSHR
Capt Hebert/jrn
6 August 1962

6. Field maintenance manuals for the various systems will be prepared, and the maintenance manuals for the vehicles. The content will be the same as for the original maintenance manuals. These manuals will be prepared in general accordance with specifications MIL-2-5075 or MIL-2-5303, and will contain test requirements for collected modules/components, but no specific MS application. The manuals will also contain repair procedures for collected modules/components in a system removed configuration for the Command and Control and the Ordnance and Control Functional Systems.

2. Subject manuals are in accordance with the provisions of AF/SSD Exhibit 61-144.
3. To insure utilization of the above data, all programs using the Agave D vehicle should insure compatibility of their peculiar manual requirements with the Agave D manuals. This will include manuals developed for Aerospace Ground Equipment (AGE).
4. This action will provide development agencies a baseline from which to initiate action; prevent duplication; and reduce development time.
5. Program offices may receive further information and/or assistance in compliance with this policy by contacting SSO, Mr. H. T. Bookman, WAG. 77, Ext. 3737.

UNCLASSIFIED

BERRY H. FLETCHER, JR.
Colonel, USAF
System Program Director for Agave

108

Mr. J. J. Jones/1953

Director of System & Program Management

14013 1952

1953 (1953)

1: Reference paragraph 212 -

a. The Agency D Program Management Group, was established as a wing, all Air Force Group, charged with the responsibility of developing and producing an operational vehicle on a compressed time schedule.

Under this criteria, the Systems Program Director, and the Air Force engineering personnel, established that account to direct a complete readiness in the contractor's plant. The System Program Director and his personnel, participated with the contractor's Program Manager and his personnel, in all meetings, discussions, evaluations and decisions at the contractor's facility. Thereby was established a completely free flow of thought and experience between the two groups, with immediate reaction to each and every problem as it arose. In this kind of a relationship, the Systems Program Director was actually involved in what amounted to a continuing fact finding operation with the contractor's Program Manager.

b. The Air Force pre-negotiation position was prepared on August 5th through 9th. Briefing charts were prepared, and on 10 August the -53 contract brief was given to the OSD Procurement Staff in the morning, and to Brig Gen Powell in the afternoon. General Powell took the briefing for General Eves, and advised Colonel Fletcher, that the briefing requirement had been met, and that General Powell would advise General Eves.

SIGNED
R. F. BECKER
Contracting Officer

65H File Copy

SSRCK/es

13 Aug 62

ELLINGTON EYE 081300Z 15 AUG 62 0200Z 15 AUG 62 PLS
SAFOI-3

RTY WITH COM

CA
PLS ACK LA, NY, CCV
NY RTY
CC 436
CC 436
CC RTY
LA ARE YOU THERE
LA RTY CA PLS
INCL ARE YOU THERE

I WILL GO AHEAD

THIS IS SAFOI-3C MAJOR MCCRE

FOR SAFOI NY
SAFOI LA
SAFOI CH
MAJOR ELLINGTON AT SSD

PLEASE CALL MAJOR ELLINGTON AT SSD, EXTENSION 2261 AND 2269

FOR RELEASE AT 2200 EDT 15 AUGUST, 1962

SUCCESSFUL FLIGHT OF A NEW "STANDARD" SPACE VEHICLE, WAS DISCLOSED TONIGHT BY UNDERSECRETARY OF THE AIR FORCE, DR. JOSEPH V. CHARYK, IN A SPEECH BEFORE THE SEVENTH ANNUAL SYMPOSIUM ON BALLISTIC MISSILE AND SPACE TECHNOLOGY AT THE AIR FORCE ACADEMY, COLORADO SPRINGS, COLORADO.

DR. CHARYK DESCRIBED THE NEW AGENA B AS "A PROGRAM TO SEEK A STANDARD UPPER STAGE VEHICLE FOR MANY OF OUR SPACE PROGRAMS IN THE INTERESTS OF ACHIEVING A RESPECTABLE AND VITAL RELIABILITY FIGURE."

THE AGENA, DEVELOPED IN WHAT WAS FORMERLY KNOWN AS THE DISCOVERER PROGRAM, HAS ACHIEVED MORE ORBITS THAN ANY OTHER SATELLITE IN THE WORLD. THE FIRST AGENA WAS ORBITED BY THE AIR FORCE ATOP A MODIFIED THOR IRBM, FEBRUARY 28, 1959.

"WE HAVE NOW LAUNCHED OVER TWO HUNDRED EARTH SATELLITES, OR ALMOST FIFTEEN TIMES AS MANY AS THE SOVIET UNION," DR. CHARYK STATED. "OUR SUCCESS RECORD HAS GONE FROM A LOW POINT OF TWELVE FAILURES OUT OF SEVENTEEN TRIES IN 1958, THROUGH ELEVEN FAILURES IN THIRTY-NINE TRIES IN 1961, TO A RECORD OF ONLY ONE FAILURE IN SIXTEEN ATTEMPTS."

IN POINTING OUT THE ACCELERATED DEVELOPMENT AND PROGRESSION OF THE AGENA D, THE UNDERSECRETARY RECALLED THAT "THE INITIAL ESTIMATE IN THE FALL OF 1961 WAS THAT THE BEST POSSIBLE SCHEDULE WOULD RESULT IN INITIAL VEHICLE DELIVERY IN NOVEMBER OF 1962, WITH INITIAL LAUNCH IN JANUARY OF 1963.....AMAZINGLY ENOUGH, AFTER A THOROUGH SCRUB-UP OF THE PROGRAM, A NEW SCHEDULE WAS EVOLVED CALLING FOR INITIAL DELIVERY IN APRIL 1962 AND INITIAL LAUNCH IN JUNE 1962, A TELE-SCRAMBLE BY ABOUT A FACTOR OF TWO.....BOTH OF THE DATES WERE MET AND THE FLIGHTS TO DATE OF THE NEW VEHICLE HAVE BEEN SUCCESSFUL."

THE AGENA D, A LIQUID-FUELED UPPER STAGE VEHICLE CAPABLE OF ATTITUDE CONTROL AND RESTART OF ITS ENGINE IN SPACE, IS THE LATEST MEMBER OF THE FAMILY OF AGENA SATELLITES WHICH ALSO INCLUDES THE "A" AND "B" MODELS. SINCE ITS FIRST LAUNCH AND SUCCESSFUL ORBIT IN FEBRUARY, 1962, APPROXIMATELY 75 PER CENT OF THE AGENAS HAVE BEEN SUCCESSFULLY PLACED IN ORBIT

NOTE-----LAST PARAGRAPH IS NOT IN CHARYK SPEECH. ALSO, FYI, A LAYMAN'S EXPLANATION OF DIFFERENCE BETWEEN A, B AND D MODELS IS THIS-----A AND B HAS PAYLOAD INTEGRATED. D MODEL IS BARE MODEL, SUITABLE FOR A VARIETY OF MISSIONS. THE NEW AGENA D IS COMPLETE AS IT ROLLS OFF ASSEMBLY LINES, EXCEPT FOR REQUIRED PAYLOAD AND "ACCESSORY" MODIFICATIONS. THESE MODIFICATIONS WILL BE ACCOMPLISHED IN MUCH THE SAME MANNER AS AN AIR CONDITIONER OR RADIO IS ADDED TO A STANDARD MODEL CAR.

END SAFOI-JC MAJOR THOS L. MCCOY

THIS IS SAFOI LA PARTS OF ABOVE MSG CARRIED CAN YOU REPEAT
LAST LINE OF PAR 1 LAST LINE OF PAR 2

LAST LINE OF PAR 1 READS-----
MIN PLS D CORRECTION LAST LINE OF PAR 2 PLS

GRKV ACK 2

210

SEBID/IC 2-10000/875-3792, 5225

AUG 16 1952

Auto-DRIVE Orientation

SSN	SSZD	SSZX
SSZL	SSZDO	SSZI
SSZB		ATKNO 1530 Burgville
SSZC	SSVR	6595 Airforce Test Bg

1. A demonstration run of the Automatic Data Reduction and Processing Equipment (Auto-DRIVE) will be held at Building 104, 1500, Burgville on 28 August 1952 at 1100 hours for the purpose of determining effected Air Force personnel on the operation and application of this equipment. Auto-DRIVE makes real time 60-120 CO evaluation of one link of FM/FM or FM/PAW telemetry data and provides real time printout of test results during preliminary or final Agma system tests. Its operational advantages result from the reduction of the lengthy and costly delays for manual telemetry data reduction and evaluation at Air Agma system tests.
2. In order to derive the maximum benefit from this equipment, it is imperative that program office personnel, especially those who will be involved in Agma Vehicle's efforts, become familiar with the operation of the Auto-DRIVE system. For this reason it is requested that all Agma Program's make every effort to have recipient personnel present for this demonstration, which will consist of a brief classroom session followed by a live run, schedule permitting, on a WMA vehicle. If a real time run is not possible on this day, a telemetry tape will be used for the Auto-DRIVE demonstration.
3. The person to contact at Building 104 on 28 August is Frank Morgan, extension 26529. SEBID will provide any additional technical information required on the Auto-DRIVE system.
4. It is requested that each addressee submit the names of persons who will attend to SEBID (R3D extension 3915).

SIGNED

JOHN S. PHIPPS, JR
 Lt Colonel, USAF
 Chief, Agma AHS Division

Copy to
 LTSC SV (Mr. F. Morgan)

Lt Br10000/SSN

15 Aug 52

216
911



1. To provide a concrete basis for the establishment of Agency-D program conditions for using program flight mission planning, this Office requires documentation of the critical conditions. The list shown below in paragraph 2 is not intended to be complete, but should be used as a minimum guide. For each stipulation and condition described, DMSO should provide adequate background and referenced data. Where the primary basis is one of engineering judgment, the contributing factors should be enumerated.

2. The following are typical of Agency-D program conditions which require identification:

a. Maximum time between functions of engine, pneumatics, hydraulics, and other mechanical devices with stipulations as to conditions which must be maintained, e.g. vehicle status, temperature limits, etc, and indication as to whether function can be accomplished in the stated condition.

b. Maximum time between checkout of electrical and electronic components with stipulation as to conditions which must be maintained and indication as to whether checkout can be accomplished in the stated condition.

c. Insure that both propellant tanks

2) with propellant isolation valves upstream of engine, engine

cut.

2) without propellant isolation valves, propellant loaded up
to engine valves.

d. Vehicle servicing (includes each significant component separately)
required after vehicle has crossed propellant loaded time.

3. Item is requested to establish a coordinated position on the above
between Agency D and Central Engineering and to submit the results to
SSHA by 14 September 1962.

SIGNED

EDWARD F. BURN, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agency

CYS to: AFRO (DISO)

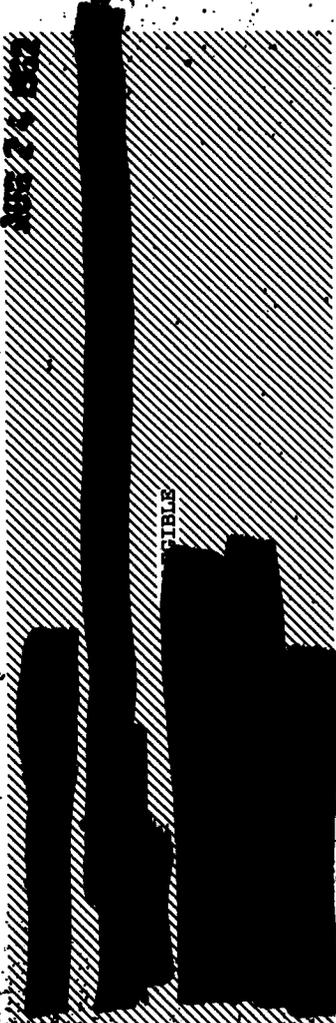
SSHA

L. R. VICTORO, 62-44

SSSA-2/dst

16 AUG 62

NOV 24 1962



1. Reference:

- a. COMA ltr to DMC, S. Keller, dtd 25 Jul 62, same subject.
- b. DMC ltr LO 5 7935 to COMA, dtd 14 Aug 62, same subject.

2. The DMC reply (ref. b.) to RQ letter (ref. a.) requesting a statement of mission requirements was received within the requested time. The preliminary information transmitted will be of value for forthcoming decisions in the K15B1-2A-13 (main) engine development program.

3. DMC is requested to report to RQ the status and results of continuing analysis of mission performance requirements. Special consideration should be given to identification of critical performance parameter(s) for engine mission, viz. ~~_____~~ thrust and range. Attention should be given to evaluating which "short time" is most crucial, e.g. time to 90% thrust or time to maximum thrust gradient, and to a more accurate estimate of mission requirements. The requirement for 3 0.3 sec to 90 percent thrust given for the first three of the above missions in ref. b. seems to be the same as the observed variation of the present K15B1-2A-9 and -11 engines.

4. Other system considerations which do not appear to have been covered include:

a. Interactions between the time setting for opening of the synchronized valve of the critical procurement system and the variability in engine start time (potential problems are fuel burst or discharge reversal) and

3. Interactions between the two state transition mechanisms and the two estimator systems being analyzed are given. It is suggested that the latter evaluation is preliminary, but it should be taken into account in the next estimator development.

A summary of available results should be submitted to arrive at a decision by 17 September 1962.

SIGNED

EDWARD F. BRUM, Lt Col, USAF
Chief, Vehicle/Avionics Engineering Div
Systems Program Director for Agma

Copies to:
LTC, L. R. Williams (62-44)
LTC, R. A. Duling (62-43)

SEIAA-2/jes

24 August 62

913

PROGRAM S-01A
AUGUST 1962

STATUS REPORT ON
AGENDA D

CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
	Foreword	i
	Introduction	1
I	Contracts	2
	A. Background	2
	B. Development/Engineering Contract	3
	C. Production Contract	8
	D. Advanced Development Contract	9
II	Program Ground Rules	11
III	Organization	13
	A. SSD Program Office	13
	B. Relationship with AFPR	14
	C. IMSC Management Organization	16
	D. Command Channels	19
IV	Management Techniques	20
	A. Cost Management	20
	B. Program Control Channels	22
	C. Technical Management Interface	24
	D. Vehicle Acceptance Procedures	25
V	Summary Conclusions	28
	A. Unique Accomplishments	28
	B. Lessons Learned	28

20 August 1962

FOREWORD

In conformance with directives received from Hq USAF and in recognition of the urgency attached to the satisfactory accomplishment of the accelerated Agena D Program, certain extra-ordinary and unusual technical and contractual relationships were established with the Lockheed Missiles & Space Company, Sunnyvale, California. It is the purpose of this report to record these relationships, to analyze the effectiveness of this unique management approach in light of the results obtained to date and to present summary conclusions.


HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

INTRODUCTION

Early in 1961, increased activity and mounting costs of space programs forced recognition by AFSSD of the necessity for reducing cost and increasing flexibility through standardization of the Agena stage.

In order to establish the technical feasibility of this approach, on 30 June 61, the Agena Standardization Study was authorized. The results of this study were favorable and after approval by Hq USAF and DOD, on 25 August 61 the U. S. Air Force awarded Contract AF 04(695)-21 to the Lockheed Missiles and Space Company for the design, development, and production of twelve Agena D satellite vehicles which were to be standard in nature and capable of being used with a minimum degree of change in various satellite programs. First launch was scheduled for January 1963.

On 17 October 61 the Honorable Dr. Joseph V. Charyk, Under Secretary of the Air Force, appointed a special committee chaired by Mr. Clarence L. Johnson to investigate ways and means of providing a more reliable Agena on an accelerated schedule. This committee reviewed the approach proposed under the standard Agena concept and the capacity of the Lockheed Missiles and Space Company for accelerating the approved schedule. It was the conclusion of the committee that a more reliable standard Agena could be produced to support a June 62 first launch provided that extraordinary and

2 / 6

unusual technical and contractual relationships were established and rigorously adhered to by both the Contractor and the Government. The management principles proposed by the Johnson Committee were reviewed by Hq USAF and approved as the basis for program management. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, exclusion area in which to perform the work, and extraordinary program management channels. To insure compliance by both parties, these 'ground rules' were actually made a preamble to the contractual work statement for the accelerated Agena D program.

The prime objectives of the accelerated Agena D program are:

1. To produce a more reliable standardized basic vehicle capable of performing essential ascent and/or orbital functions derived from common mission requirements of the following programs:


in accord with the accelerated schedule and within the allocated budget.

2. To provide a fixed-price procurement source for Agena D vehicles with a production capacity of five vehicles per month.

1. CONTRACTS

A. Background. In compliance with guidance received from Hq USAF (Reference Hq USAF messages (1) AFSDC-F 82350 dated

30 Nov 61. (2) AFSPM 4077 dated 22 Nov 61, and (3) AFSSC-EQ 90915 dated 5 Jan 62) two separate contracts have been established to accomplish the stated objectives of the accelerated Agena D program. The basic development/engineering contract (AF 04(695)-21) provides the necessary engineering capability and industrial base for the design, development, fabrication, assembly, qualification, and test of twelve prototype Agena D flight vehicles with initial delivery to support a June 1962 first launch. This contract also provides as a primary objective, creation of the 'Procurement Package' to permit a fixed price procurement and the creation of a capability for production at the rate of five Agena D vehicles per month. The follow-on production contract (AF 04(695)-68) has been established to support an initial delivery of 39 Agena D vehicles with an initial production rate established as four vehicles per month.

B. Development/Engineering Contract

1. General. The Development/Engineering Contract (AF 04(695)-21) was written originally to support the standard Agena program authorized on 25 August 61. In order to accomplish the objectives of the acceleration, however, the management approach to this contract was completely reoriented on 7 November 61. In essence, the Lockheed Missiles and Space Company, in response to Air Force guidance, completely reoriented the organization responsible for management of the vehicle design, fabrication,

assembly, and test which was in being to support the production of the Agena B. From the outset it was recognized that it would be necessary to assign one individual across-the-board responsibility for all phases of the Agena D program. Accordingly, LMSC proposed the creation of what might be considered a company within a company, establishing the Agena D program office having complete Agena D responsibilities and reporting directly to the Vice President and General Manager, Space Systems. This organizational approach was dramatic and effective. As much as any other single factor, it has been responsible for the quick response time which has been demonstrated in the performance of LMSC to date. The basic R&D contract was definitized in such a manner that it encompassed all of the requirements for the complete redesign and qualification of the Agena D vehicle. It authorizes the fabrication and use of development tools such as the Propulsion Test Vehicle which was utilized to proof test the orifice pressurization system and the dual start capability of the rocket engine, the Structural Test Vehicles which were utilized to concurrently qualify the forward equipment rack and the aft structure, and the Thermal Test Vehicle which was used to verify environmental acceptability of the design. Additionally, a Functional Test Mockup and necessary wood mockups were furnished. In addition, twelve prototype flight articles will be produced, qualified,

and checked out under this contract, and provision has been made for the production of a Development Test Vehicle. The DTV will serve now and in the future as a means of installing, qualifying, and where necessary, hot firing, program peculiar and advanced development modifications in support of all programs utilizing the Agena D stage. In addition to the above, it is a requirement of the -21 contract that a manufacturing production capability be established which will permit production of Agena D vehicles at the rate of five vehicles per month on a fixed price contract.

2. Incentive Features of the Contract.

a. In conformance with DOD policy, it was established from the outset of the Agena D program that the research and development phase was to be contracted as a Cost Plus Incentive Fee contract.

b. The features of the negotiated incentive formula for computation of fee are as follows:

1. Division of Fee: Equal weight will be given to cost, schedule, and performance (1/3) each.

2. Costs: Based upon a target fee rate of 7% for cost and a contract target cost of \$31, 713, 746, the Contractor will receive \$739, 987 if the final contract cost is \$31, 713, 746. If the final cost of the contract is 5% more than the target price, the Contractor's fee will be reduced by \$31, 714; if 10% more, it will be reduced by \$63, 428; if 15% more, it will be reduced by \$116, 283

and checked out under this contract, and provision has been made for the production of a Development Test Vehicle. The DTV will serve now and in the future as a means of installing, qualifying, and where necessary, hot firing, program peculiar and advanced development modifications in support of all programs utilizing the Agena D stage. In addition to the above, it is a requirement of the -21 contract that a manufacturing production capability be established which will permit production of Agena D vehicles at the rate of five vehicles per month on a fixed price contract.

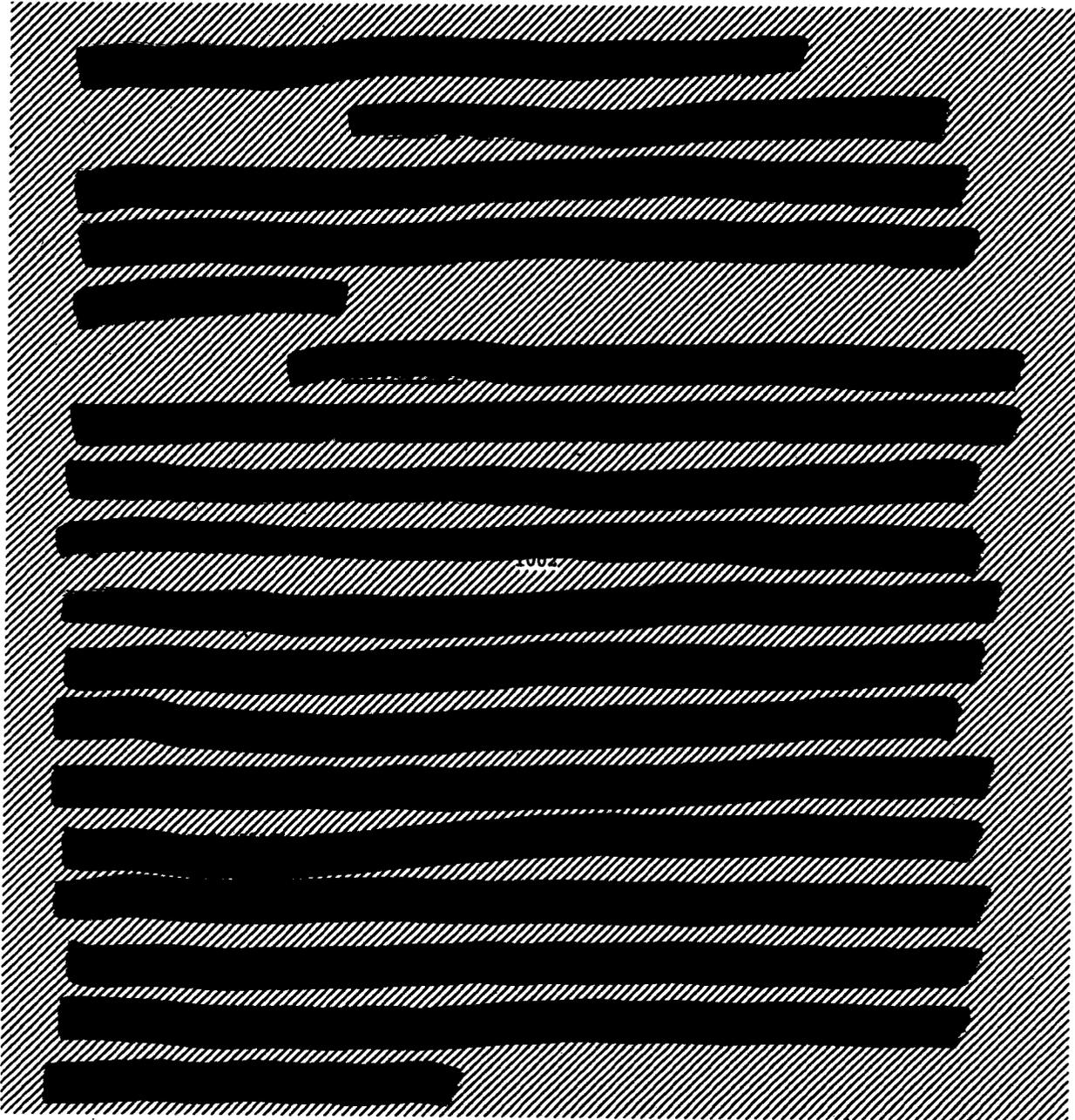
2. Incentive Features of the Contract.

a. In conformance with DOD policy, it was established from the outset of the Agena D program that the research and development phase was to be contracted as a Cost Plus Incentive Fee contract.

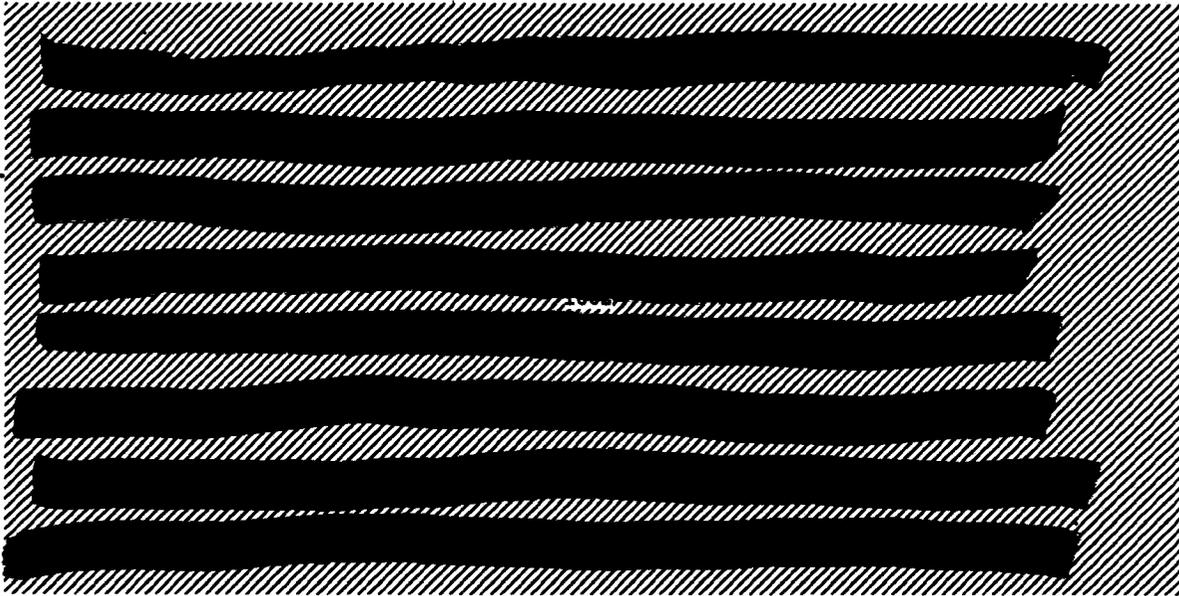
b. The features of the negotiated incentive formula for computation of fee are as follows:

1. Division of Fee: Equal weight will be given to cost, schedule, and performance (1/3) each.





4. Performance: One of the most significant and unique features of the negotiated incentive fee relates to the payment of the 1/3 fee based upon performance. The Contractor proposed and the Air Force accepted the principle that the Air Force would unilaterally rate the Contractor's performance. LMSC officials



An Air Force board composed of representatives of the using programs and the Agena D Program Office will be appointed by the Commander, AFSSD, to rate the Contractor's performance within 30 days of the launch of the twelfth prototype vehicle. The board will use the following criteria: 30 points for (1) Reliability, (2) Program Adaptability, (3) Ease of Checkout; 30 points for (1) Weight of Vehicle, (2) Ascent Performance.

Additionally, it has been mutually agreed between the Contractor and the Agena D Program Office that should failure to qualify all components of the Agena D vehicle prior to flight of each of the prototype vehicles delay the flight of any vehicle, a suitable adjustment of the performance fee will be made. This will be the first time that the Agena vehicle will be contractually required to have all components qualified for flight prior to flight.

C. Production Contract

1. General

2
3
5

a. Contract AF 04(695) 68 is intended to be a production contract, whereunder fixed-price redeterminable procurement will be accomplished on the basis of a procurement package developed under Contract AF 04(695)-21. This procurement package consists of a detail specification, an acceptance test specification, and the required vehicle drawings.

b. It is planned that the management of the -68 contract will be in compliance with standard Air Force production procurement regulations and that although it will not necessarily encompass all of the military specifications associated with standard Air Force procurement, it will satisfy completely the intent of those specifications.

c. This production contract will utilize directly the engineering output of Contract AF 04(695)-21. There will not be a redesign for production required since the AF 04(695)-21 contract will result in documentation of a qualified production configuration. This configuration will be considered a frozen configuration, and configuration control in accordance with AFSCM 375-1 will be enforced. Changes to the configuration will only be made with Air Force concurrence and will require contractual amendment to effect any changes.

D. Advanced Development Contract AF 04(695)-191.

3
5
5

1. How it relates to the -21 and -68 contracts. As stated above, the -21 contract provided twelve vehicles, but more important it provided for the technical effort necessary for the redesign, development and qualifying of the Agena into a standard ascent vehicle -- the Agena D. The technical effort under the -21 contract has already been significantly reduced and will be completely phased out by November 1962. Inasmuch as the -68 contract buys "chinese copies" of the Agena D developed under the -21 contract, no provision for further redesign and development will be provided under the -68 contract. In fact, it has been specifically excluded in an attempt to preclude changes and increase reliability and reduce vehicle cost. The production build up occurs concurrently with the development effort under the basic contract, and without an Advanced Development Contract an engineering void will occur in the LMSC Agena D organization if all engineering effort is allowed to be terminated at the conclusion of the development/engineering (-21) contract on 30 November 62. It is recognized that deficiencies will be discovered for which additional engineering effort and possibly redesign will be required; state-of-art advancements must be adapted to the Agena D and qualified prior to being incorporated into the Agena D production.

This is where the "follow on R&D" or advanced development contract fits into the Agena plan. An appropriate level of effort will be provided under this contract to maintain the required level of engineering support to the using programs.

485

II. PROGRAM GROUND RULES

A. Ground Rules. To accomplish the Agena D program the Johnson Committee basic ground rules have been implemented and governed the development of the Agena D. In general, these ground rules apply a streamlined AF/Contractor management concept and include a DX priority, reduction in formal procedures, inclosed area, and extraordinary program management channels. These ground rules are as follows:

1. A DX priority is assigned to the Agena D Program.
2. The engineering system shall be simplified, requiring only those drawings essential to tool, build and service the vehicle.
3. 50% final configuration freeze shall be accomplished by 1 December 1961.
4. Engineering and management level personnel for Program S-01A shall be located in an exclusion area immediately adjacent to the tooling and manufacturing area.
5. A rapid drawing release system (24 hours maximum) from the project engineer's approval to the manufacturing group shall be established.
6. Funding shall be adequate and timely.
7. Technical directive meetings involving large groups shall not be required. Air Force personnel shall work in close liaison with the LMSC Project Engineer; so formal meetings are not required.

8. Reasonable overtime will be approved. After-the-fact approval is not precluded. (Pursuant to clause A-37 of the contract.)

9. Air Force approval of vendor selection shall be furnished on-the-spot at Sunnyvale. When single source procurement is necessary, justification of such action will be kept on file.

10. Tooling shall be of the simplest type that will achieve interchangeability as stated in the basic Agena D specification. No tool drawings or outside approval of tooling will be required.

11. Interchangeability on early Agena D's will be limited to major structural and equipment items. Doors, for instance, may require trim to fit.

12. The AF Director, Program S-01A, and the LMSC Program S-01A Director shall jointly review the specification problem and agree at the configuration conference to reduce the number involved to the minimum compatible with the minimum requirements for the construction of the Agena D.

985
586

III. ORGANIZATION

A. SSD Program Office. A small streamlined Air Force office organization was established. This office consisted of eight qualified and experienced personnel that were assigned with primary duty to the Agena D program. This organization was configured to accomplish both contract administration and engineering tasks associated with the development of the Agena D, reporting directly to SSD command level. The function of each organizational element is as follows:

1. **Director S-01A** - Directly responsible for the overall Air Force management, (plans, organizes, coordinates, controls and directs), all efforts of functional agencies and industries participating in the S-01A Program. Reports directly to the SSD Commander.

2. **Deputy for Programming, Procurement and Production** - Responsible to the Director, S-01A Program, for programming, procurement and production of the Agena D and its supporting AGE/STE.

a. **Programming Branch** - Responsible for establishing Agena D program requirements based upon the official Air Force Integrated Launch Schedules published by SSD; providing budget information to program offices pertaining to fund requirements for Program S-01A and for availability of funds for release to the contractor.

b. **Procurement and Production Branch** - Responsible for all aspects of the preparation, negotiation, definitization, release and management of contracts for Agena D, and responsible for production schedules for Agena D vehicles, optional equipment and spare parts;

for Agena D production progress surveillance; for facilities, inspection and acceptance.

3. Assistant to Director for Engineering - Responsible to the Director S-01A Program for planning, implementing, and surveillance over the engineering of the Agena D and its supporting AGE/STE.

a. Aerospace Ground Equipment Branch - Responsible for the Air Force management of contractor's engineering efforts during the design, development and test of Agena D Aerospace ground equipment and special test equipment to insure the technical adequacy and timely delivery of the equipment to support Air Force programs. Also responsible that vehicle test philosophy and procedures and the checkout equipment are compatible and will, during vehicle test, provide adequate technical data to permit acceptance of the Agena D vehicle.

b. Electronics Branch - Responsible for the Air Force management of contractor engineering efforts during the design, development, and test of Agena D guidance and control and electrical power requirements to insure the technical adequacy and timely delivery of the equipment to support Air Force programs.

c. Astro Vehicle Branch - Responsible for the Air Force management of contractor engineering efforts during the design, development, and test of Agena D structures and propulsion systems to insure the technical adequacy and timely delivery of the equipment to support Air Force programs.

B. Relationship with AFPR

1. In recognition of the urgency attached to the satisfactory

accomplishment of the S-01A program it was mutually understood that extraordinary and unusual technical and contractual relationships were required. Consistent with the principle that the design, manufacture, and test of the end article within the critical program schedule could only be achieved through an unencumbered working relationship of engineering, procurement, inspection, manufacturing, logistics and support personnel, both the Air Force and LMSC Program Directors have authority to make 'on-the-spot' decisions both technical and contractual. With respect to contract administration, specifically identified tasks were monitored by selected individuals as set forth in a Memorandum of Understanding between the SPD and the AFPR.

2. The LMSC engineering and management personnel were located in an exclusion area in Building 151, immediately adjacent to the final assembly and checkout. The S-01A Air Force Program Office was located adjacent to this Agena D area in an exclusion area. Access to this Air Force office is available to using program personnel from both LMSC and the Air Force without interfering with the LMSC Agena D effort. Liaison with the LMSC Agena D activity, by and on behalf of the Air Force and contractor personnel during the contract period, is confined to a limited number of designated personnel who have free access to the entire activity at all times. Air Force access is restricted to the S-01A Program Office personnel and designated personnel from the AFPR Office. No other Air Force personnel, other than those specifically approved by the Air Force or LMSC Program Director, are permitted access to the Agena D exclusion area.

2
1
2

3. The resources of the Air Force Plant Representative Office were utilized on a streamlined basis in carrying out contract administration functions to assure satisfactory execution of the Agena D Program. Acting for and under the control of the Director, Program S-01A, the AFPR made decisions relative to the S-01A Program which were binding upon the contractor. Selected individuals from the AFPRO have been designated contact personnel for their responsible functional areas. These designated individuals have free access to USAF Program S-01A personnel and access to the exclusion area as necessary to perform the task assigned.

C. LMSC Management Organization

1. The contractor has placed the full support of the Corporation behind the Agena D Program. Within the LMSC Space Systems Division, he has established the Agena D Directorate, with broad and all-encompassing authority. This authority includes full control over operations which are normally organized on a plant-wide functional basis, including manufacturing. The LMSC Agena D Program Director's organization and his functions and responsibilities are as follows:

a. Basic Objectives: Develop, design and manufacture the Agena D vehicle, establishing management controls over all aspects of the Agena D program contract.

b. Functions and Responsibilities

(1) Serve as the principal representative of Space Systems Vice President and General Manager with the customer in negotiations and commitments for the Agena D Program.

(2) Perform the complete systems engineering and reliability function for the Agena D Program, including the direction and control of all systems design, flight sciences, and test planning.

(3) Perform all vehicle engineering for the Agena D Program, including all subsystem design for airframe and installations, propulsion, internal electrical systems, guidance and control, and selected communications and control equipment.

(4) Design or provide the technical direction for the design of Agena D checkout equipment.

(5) Perform Agena D systems tests.

(6) Manufacture of the Agena D vehicle, including electrical, structure, and final assembly in accordance with Agena D drawings and specifications. Provide production planning, tooling, and production control. Direct and control any manufacturing services required by the program.

(7) Plan, establish, and maintain an effective inspection system to provide compliance with the contractual and design requirements of the Agena D program.

(8) Establish a procurement system to provide for the analysis of material requirements, the procurement of material, control of inventories, and the receiving, storing, and distribution of incoming shipments.

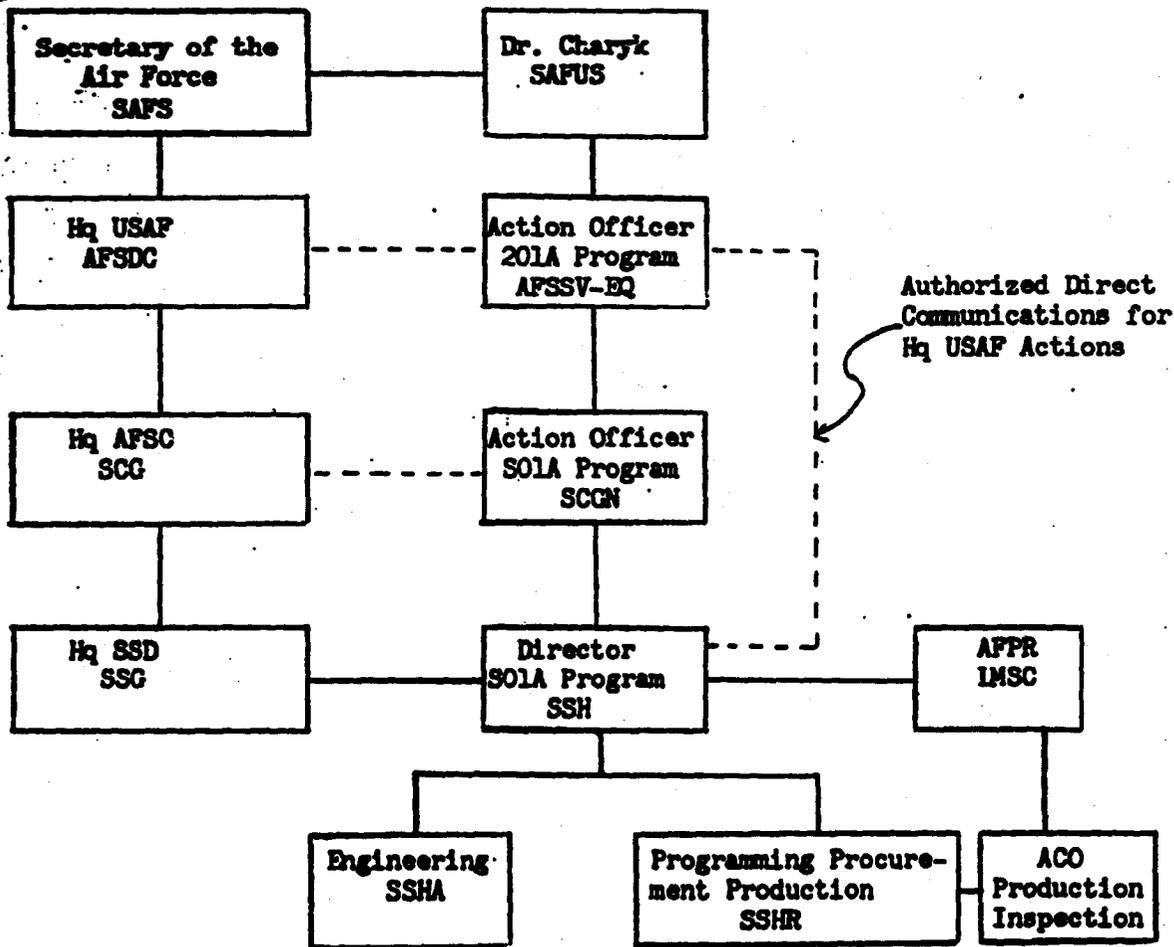
(9) Establish and maintain a management control system encompassing both program controls and administrative controls for the Agena D Program.

2. In addition to the foregoing responsibilities which have been delineated and agreed upon, the following were established as firm requirements of LMSC relative to the management of the Agena D Program.

a. The Contractor shall operate and maintain a logistics system which will insure the availability of spare parts and the repair of generated reparable.

b. The accounting system will provide for the segregation and reporting of basic vehicle development, product improvement, and logistics costs.

D. Command Channels



IV. MANAGEMENT TECHNIQUES

A. Cost Management

594

1. **LMSC Internal Budgets.** The Air Force has established the incentive features of the contract in an effort to control cost and schedules and to insure performance. The effectiveness of the incentive features of the contract pertaining to cost immediately became evident when the Contractor established his Program Cost Accounting System. In order to delegate and fix management responsibility and authority, each of the major department heads, i. e., Systems Engineering and Reliability, Vehicle Engineering, Manufacturing, Inspection, Procurement, and Administration have been given individual operating budgets and over-time allocation. These budgets are reviewed weekly by the LMSC and Air Force Program Directors and are tracked against individual organizational allocations and master program milestones that should permit the Contractor to stay within costs allocated to the program. Experience to date has indicated that this method of high-lighting and controlling cost has permitted the Program Directors timely access to information which forewarns of potential overruns. This information has permitted corrective action to be taken in sufficient time to keep expenditures within the budget. It is significant to note that at this point in the program, approximately 80% of the costs have been incurred and program costs are still tracking an expenditure curve which will result in the Contractor completing the contract at the target cost established during the negotiation.

2. Agema D Accounting System. In early December 1961

it became necessary for the Agema D Program Office to cause the Contractor to establish a special accounting system for the Agema D program which would satisfy the Air Force Auditor General requirements for the CPIF contract. This has been accomplished to the satisfaction of the Auditor General and should permit the most accurate cost accumulation-vs-vehicle production thus far achieved at LMSC Sunnyvale. The main problem with the pre-Agema D accounting system at LMSC related to the pool charges, which were utilized to fund common or centralized facilities and services. It had been the approved technique to pro-rate these costs among appropriate customer contracts. In large measure, this accounting system limitation has been overcome by the straight line organization created by LMSC for the Agema D program and the fact that the LMSC Program Director has been able to negotiate with the remainder of the Corporation for services provided outside his control. The cost accounting system which has been established was mutually evolved among the Contractor, AFPRO, local representatives of the Auditor General's Office, and the Air Force Program Office. The breakdown of the accounting system is in sufficient detail such that the problem of cost analysis for the follow-on contract should be measurably reduced from that of previous development contracts negotiated with the Lockheed Missiles and Space Company.

3. Air Force Auditor General Representative. In order to insure Contractor compliance with the agreed procedures and the

546
proper interpretation of the cost accounting system to support the CPIF contract, the Agena D Program Director requested and was assigned early in the program, a full time representative of the Air Force Auditor General's Office as a member of the Agena D staff. This individual has had access to all cost information as it is accrued and is in a position to keep the Auditor General, AFPR, and Program Director informed of the Contractor's compliance with the agreed-to procedures and his current fiscal status at all times. In addition, at the request of the AFPRO, ACO, PCO, and Program Director, he has conducted special investigations and studies as required.

B. Program Control Channels.

1. In order to avoid the necessity of special reports and briefings by the Contractor to the Air Force Program Office during the course of the accelerated program, the LMSC Program Director extended to the Air Force Program Director and his staff an invitation to attend the weekly internal Lockheed program management meetings. This has become the accepted management tool of both the LMSC and Air Force Program Directors for obtaining a weekly status report on all features of the program. The 'pipeline meeting', as it is called, is held every Tuesday morning at 0800 hours and consists of a detailed discussion of the following:

- a. Action items carried over from previous meetings.
- b. Significant accomplishments since last meeting.
- c. Problems which have arisen during the reporting period.

d. Items which must be accomplished to stay on schedule and within costs.

e. Review of technical status.

f. Review of subcontractor procurement status.

g. Review of logistic status.

h. Review of qualification program.

i. Financial and manpower status.

The attendees at the meeting consist of the members of the LMSC Program staff through management division level and such additional representation as may be required to adequately answer questions in connection with presentations which are to be given. The milestone technique of program control is utilized with every major segment of the program receiving as detailed review as is required. The presence of the Air Force Program Office at this internal LMSC management meeting has been a unique advantage for the Program staff for it has permitted the Air Force team to participate in the decision making process for all major issues that have arisen to date. Normally the Lockheed Program Director runs the meeting and gives the necessary administrative and technical direction to his staff in a manner that might be considered more appropriate if Air Force representatives were not present. It is common practice for the LMSC staff and the Air Force program team to present technical and administrative issues and differences that require mutual decision for resolution. By this technique, it has been possible for the Air Force Program Director and the LMSC Program Director to resolve differences on the spot and thereby, expedite the program objectives.

C. Technical Management Interface

1. In establishing the accelerated S-01A Program, two of the Johnson Committee ground rules had a marked effect on the internal LMSC exchange of technical information and the AF/LMSC technical working relationships. These were as follows:

598
a. "Engineering personnel shall be located in an enclosed area immediately adjacent to the tooling and manufacturing area.

b. "Technical directive meetings involving large groups shall not be required. Air Force personnel shall work in close liaison with the LMSC Project Engineer so formal meetings are not required."

2. The LMSC Agena D engineering staff was selected from the existing, experienced LMSC engineering personnel. This staff was moved to an enclosed area which required a special pass to obtain access. These measures were taken to permit the proper concentration of effort and to eliminate interruption by Non-Agena D personnel. A special liaison group was established to provide information to the various using programs.

3. It was realized that the normal Air Force technical direction and monitoring efforts would be ineffectual and time consuming for such a rapidly moving program. The Johnson Committee rule, number two, was written to require a type of modified operation. A team of highly qualified Air Force officers from Air Force Space Systems

Division were assigned the responsibility of directing this effort. This team spent a major portion of their time in residence at LMSC (approximately three days per week) and worked very closely with the LMSC engineering staff. Members of the team attended a large number of the technical and policy meetings, assisted in the discussions and in arriving at decisions. By being present during these formative discussions, there were minimum delays in obtaining Air Force approvals. Personal contact with all engineering personnel was fostered. The Air Force had complete access to LMSC internal correspondence, calculations and engineering data which was a substantial assistance in monitoring the development program.

4. Although the S-01A Program personnel spent a major portion of their time at LMSC, the program team was normally split between their AFSSD and LMSC offices. To eliminate delays, a direct phone line was installed between the two offices. This provided a rapid means of communication and has proved very effective. Formal correspondence and paperwork has been kept to a minimum. Internal LMSC engineering reports, design reviews and analysis have been used throughout the program. Formal agreements have been recorded as memorandum of understanding or memorandum for the file.

D. Vehicle Acceptance Procedures

1. The team concept of acceptance as used on Agena Bs has been instituted for the Agena Ds. It is planned that after the detail

specification, test specification, and test procedures have been approved and thoroughly tried out, the acceptance of vehicles will become the responsibility of the Air Force Plant Representative. In the interim, however, the Acceptance Team currently consists of three members of the AFSSD S-01A Directorate, one of whom serves as Chairman, two members from the Air Force Plant Representative Office (Quality Assurance), a member from the Air Force using program office, and a member from the LMSC using Program office.

2. Acceptability of the vehicle for delivery to the Government is determined by review of the test results during the assembly process at the rack and module level, and during final system test, and through physical inspection of the vehicle. A final integrated system test is made prior to acceptance of the vehicle. This test run simulates a representative ascent mission and exercises all equipment to be used in the vehicle. The data is then processed and made available for review by the Acceptance Team. An acceptance data table (Table 5) is completed for ease of review. Also, the vehicle log is provided which gives a complete story of the vehicle from beginning of assembly until it is offered to the Air Force for acceptance. After completion of the system test and analysis of the data, the vehicle is thoroughly inspected by the LMSC inspection organization, which is followed by the LMSC engineering staff inspection. After working off all discrepancies, it is turned over to the Air Force for physical inspection. The engineering members of the Acceptance Team and the AFPR (QA) Inspectors then inspect the vehicle.

3. After physical inspection of the vehicle and review of the data, a formal acceptance meeting is held. At that time, an LMSC letter certifying the vehicle's acceptability to applicable design and specification is provided, signed by the LMSC Agena D Program Director. The meeting is held primarily to provide answers to the Air Force on any problems, omissions, discrepancies that have been uncovered. The acceptability of the vehicle to the terms of the contract is determined at this time. Should the vehicle be unacceptable, a detailed listing of discrepancies is formally provided to LMSC for necessary corrective action and subsequent reoffer of the vehicle. The contractual aspects of the incentive fee pertaining to schedules has been formally documented by memorandum between the LMSC Program Director and the Air Force Program Director.

V. SUMMARY CONCLUSIONS

A. Unique Accomplishments. Following is a listing of significant 'firsts' which will be accomplished under the Agena D contracts:

- a. First CPIF contract between LMSC and the Air Force.
- b. First CPIF contract to be negotiated in which the performance fee aspects are adjudged unilaterally by a board of Air Force officers upon completion of the flight test program.
- c. First AFSSD procurement of spares to a definitive list.
- d. First development program in which all components will have been formally qualified for flight before first flight.
- e. First 'procurement package' for a space vehicle.
- f. First program to incorporate semi-automatic checkout equipment in system test.
- g. First 'fixed price' procurement of a space vehicle.
- h. First formal Configuration Control Board established for a space program.

B. Lessons Learned. The following may be cited as lessons learned to date through the CHF development/engineering contract:

- a. The incentive features of the contract coupled with the willing acceptance of the challenge of the accelerated schedule by the Contractor, in large measure have been responsible for the high motivation and unusual productivity of the Agena D program.
- b. Without question, the incentive features of the contract have contributed to increased emphasis on cost control by the contractor and

resulted in all scheduled deliveries being met thus far.

c. The reimbursable concept of funding the production contracts for boosters and stages is highly endorsed for it permits an orderly production flow to be established, economical lot buys and fixed price contracts to be negotiated, configuration control to be effectively exercised, costs to be held down and, in general, better management to be exercised.

d. The paradox of the relaxed formal documentation requirements and "skunk-works" approach of the accelerated program to the stringent controls necessary for effective management of a CPIF contract make it difficult for the Air Force Program Director to satisfy both objectives without compromise. In large measure, through the close working relationship and cooperation of both parties, it is believed that this has been accomplished.

e. Future CPIF contracts would be facilitated - in the negotiation phase - through the use of a more definitive work statement than was prepared for the Agena D program.

f. The accounting system evolved for the CPIF contract indirectly should result in more accurate costing for all LMSC programs.

g. It has been established that through a close working relationship with the Contractor, it is possible to eliminate the requirement for many reports, meetings, etc., and, in general, reduce documentation. This has not been accomplished without personal inconvenience to members of the Air Force program team who routinely spend three to five days per week on TDY. Should other high priority programs adopt the Agena D

approach, it is recommended that PCS be considered as a possible means of eliminating this objectionable aspect.

h. Configuration Control is a mandatory prerequisite to effective standardization of design and should enhance reliability and quality control.

604

214

695

ROUTED
RECEIVED

X AF X

SSD LOS ANGELES CALIF

LOCKHEED ACFT CORP INSL & SPACE CO BURBANK CALIF

INFO: APPRO LOCKHEED ACFT CORP INSL & SPACE CO BURBANK CALIF

UNCLASSIFIED SSK 27 8 33

ACTION INFO FOR MR HINGARD. INFO APPRO INFO FOR MR HAGERBY

SUBJECT: COST-PROPOSAL FOR LETTER CONTRACT AF C4(695)-194.

/I/ REFERENCE SSK REQUEST FOR COST PROPOSAL TO DEFINITIZE LETTER CONTRACT AF C4(695)-194. /II/ INASMUCH AS THE PRODUCTION CONTRACT AF (695)-68 WILL BE CONVERTED FROM A FIXED PRICE REDETERMINATION CONTRACT, AT THE TIME OF THE REDETERMINATION TO A FIRM FIXED PRICE CONTRACT, SSK REQUEST FOR A FIXED PRICE INCENTIVE CONTRACT PROPOSAL IS HEREBY MODIFIED TO A REQUEST FOR A FIRM FIXED PRICE COST PROPOSAL TO DEFINITIZE L/C AF-194. /III/ THIS ACTION IS BASED ON THE FACT THAT THE AF-194 CONTRACT IS A FOLLOW-ON PRODUCTION ORDER, AND THE PHILOSOPHY FOR FIRM FIXED PRICE CONTRACTS HAS BEEN ESTABLISHED WITH THE AF-68 CONTRACT. FURTHER, THE FIRM FIXED PRICE CONTRACT IS CON-

7
AUG 1962 1530

SSSK

SIGNED

MR. E. F. BECKER/25/27 Aug 62

4115 R2D

1 2

E. F. BECKER
CONTRACTING OFFICER

UNCLASSIFIED

UNCLASSIFIED

USD LOS ANGELES CALIF

SIDERED TO BE THE BEST PRINCIPLE OF ENGINEERING CONTRACTS. /IV/ HSC
UNDERSTANDING AND ACCEPTION IS REQUESTED.

SIGNED: M. P. BISHOP, CONTRACTING OFFICER

SSMKA

2 2

UNCLASSIFIED

HP/



There will be one contract with IMSC for the procurement of Agena vehicles (with ancillary services) for use by SSFI, SSZN and SSZX. This contract will be separated into three parts and actual program costs segregated for funding by each using program office. At a later date the AGE portion of this contract with program cost segregation may be withdrawn to form a separate contract. This will be done if deemed appropriate and only with mutual consent of the four Air Force Directors.

The using program office, in conjunction with their IMSC counterpart organization, will study their overall mission problems and determine their mission requirements. They will reflect these requirements in a Program/Agena D negotiated work statement for their program, a negotiated exhibit to the contract, detail Program/Agena D specifications, program peculiar equipment specifications, necessary test specifications to include a final systems test specification.

The above specifications will be provided in a timely manner to SSH, who with their counterpart IMSC organization will provide Program/Agena D vehicles to satisfy these acquired specifications.

Specific:

1. SSH shall cause IMSC to provide a "Pod ready" Program/Agena vehicle on the dock of Building 152 IMSC at an agreed upon date with the necessary AGE in place.
2. SSH will provide Air Force contractual and liaison engineering support.
3. SSH shall cause IMSC to remove and/or install all basic, optional and mission peculiar equipment to configure the Agena D to the specifications describing the Program/Agena E vehicle.
4. SSH shall cause IMSC to modify test complexes C-3 and C-5 to support the three using programs.
5. SSH shall cause IMSC to fabricate or procure mission peculiar equipment to conform to the specifications received.
6. SSH shall cause IMSC to test only to the specifications originally received or those mutually agreed upon at a later date. (i.e., This will be an A.P. Q.C. type acceptance inspection based on applicable specifications.)

7. SSH will provide configuration management control until the vehicle is offered for delivery to the using program office.

8. SSH and the using program offices will work as a team. Conflict of objectives between the three using program offices will be arbitrated among themselves; failing in this, resolution will be sought from SSZ - SSGO and a single course of action provided to SSH.

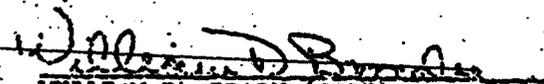
9. SSH shall cause IMSC to provide support (i.e., design criteria and specifications) for all launch complexes to be constructed or modified to the Agena D configuration.

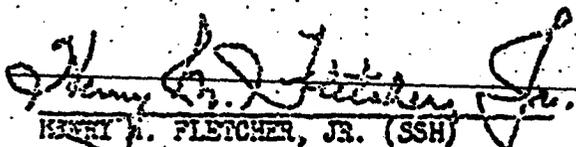
10. SSH shall cause IMSC to provide all of the standard ground environment (AGE and personnel) to support the Agena D portion of an Atlas/Agena launch at AMR and PWR.

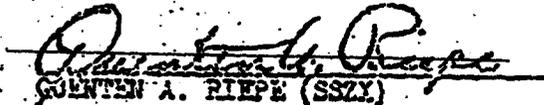
11. SSH shall provide budget planning information/assistance as required by the Program Offices.

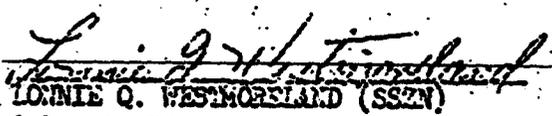
Conditions:

The above Agreement is based on the adequate and timely funding actions by USAF and the program offices, the delivery of specifications on time, and the maintenance of an adequate qualified personnel strength in the Program Offices and SSH.


WILLIAM D. BRADY (SSZL)
Colonel, USAF


HENRY H. FLETCHER, JR. (SSH)
Colonel, USAF


GUENTHER A. RIEPE (SSZY)
Colonel, USAF


LONNIE Q. WESTMORELAND (SSZW)
Colonel, USAF

216

SEP 7 - 1952



ILLEGIBLE

1. The contemplated procurement is for all necessary services and material required to provide and maintain a capability for launching twelve (12) flight test vehicles at the rate of one (1) every two (2) months for the period 1 October 1952 through 31 March 1953; and one (1) each month for the period 1 April 1953 through 31 December 1953.
2. During evaluation and negotiation of the Contractor's technical and cost proposals every consideration will be given to the possibility of negotiating other than a CFPF contract, i.e., an instrument with incentive features. However, the nature of the requirement and responsibilities connected with it would tend to preclude the development of incentive features which could be relied upon to truly reflect meritorious effort justifying incentive rewards or conversely reflecting bases upon which the contractor's fee would justifiably be reduced. In the event that a type of contract, other than CFPF, results from the above evaluations and negotiations, a new RFQ will be processed.
3. It is proposed to issue Letter Contract AF 64(675)-198 for the above described requirements. The procurement is planned to be negotiated with Lockheed Aircraft Corporation, Missile and Space Company, Sunnyvale, California, for primary performance at the Atlantic Missile Range.
4. A Determination and Findings, copy attached, is submitted for signature, pursuant to AFM 3-303(a).

SIGNED

WILSON GRIFFIN
Contracting Officer

1 Mch
1952

**MEMORANDUM OF THE AIR FORCE
CONCERNING THE AIR FORCE
AUTHORITY TO REWARD CONTRACTORS**

The Department of the Air Force proposes to use a CPFF contract for the procurement of services and material necessary to provide and maintain the capability for launching a maximum of one (1) flight test vehicle each two (2) months for the period 1 October 1962 through 31 March 1963; and one (1) flight test vehicle each month for the period 1 April 1963 through 31 December 1963. The estimated cost for this and additional effort associated

I hereby find that the exact nature and extent of the work covered by the proposed contract and the precise method of accomplishing that work cannot be established in advance, but must be subject to improvisation and change as the work progresses, and the cost of performing said work cannot at this time be forecast with a reasonable degree of accuracy.

Upon the basis of findings set forth above, I hereby determine pursuant to 10 U.S.C. 2305(c) that it is impractical to secure services of the kind or quality required without the use of a CPFF contract, and I hereby authorize the use of said contract.

~~CONFIDENTIAL~~

218

SSH/Maj Hagerls/911

SEP 11 1962

Agona D FY-63 Funding Requirements to Support NASA
Program Requirements

SSVR

1. The FY-63 Agona D costs for NASA programs are as follows:

- 4 vehicles @ 1.3/veh
(1 Gemini DTV, 1 Gemini, 1 Rebound, 1 POGO)
- 5 vehicles long lead @ .6/veh
(2 Gemini, 1 Mariner, 1 Rebound, 1 OAO)

Total

2. The \$5.2M provides for the total Agona D costs for four vehicles including spares and options, plus a pro-rated share of logistic support, storage, repair, and general engineering support associated with the Agona D production program. The 3.6M provides for long lead funds required for five additional vehicles.

3. These costs are based on Data Table 19C dated 26 July 1962. Based on established SSG policy, program funds allocated to support the above effort will not be reprogrammed due to changing program requirements without SSG approval. Request the above funds be initiated as soon as possible.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agona

DOWNGRADED AT 3 YEAR INTERVALS.
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

SSH-1052

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

U.S.S.I.F.I.E.D. 219

NOTES

X AF

SSD LOS ANGELES CALIF.

CSAF WASH DC

UNCLASSIFIED SSI - 13-9-10

SSI REC FILE COPY

FOR AFSA. SUBJECT: STANDARDIZED BOOSTERS AGENDA D. /1/ REFERENCE
 TWX USAF, AFSA 79273 30 AUGUST 1962. LOCKHEED MISSILE AND SPACE
 COMPANY HAS WITHDRAWN THEIR ORIGINAL REQUEST FOR NEGOTIATION OF
 A REDETERMINABLE TYPE CONTRACT, AND HAS REQUESTED THIS HEADQUARTERS
 TO CONSIDER THE POSSIBILITY OF NEGOTIATING A FIXED PRICE INCENTIVE
 TYPE CONTRACT. /2/ THIS HEADQUARTERS HAS EVALUATED THIS REQUEST
 AND IS IN AGREEMENT THAT IT WOULD BE MORE ADVANTAGEOUS AND DESIRABLE
 TO NEGOTIATE AN INCENTIVE TYPE CONTRACT FOR THE STANDARD AGENDA D
 BOOSTERS. /3/ THEREFORE, THE NEGOTIATIONS ARE BEING CONTINUED
 WITH THE GOAL OF DEFINITIZING THIS PROCUREMENT INTO AN INCENTIVE
 TYPE CONTRACT, ADHERING TO THE POLICIES AND CRITERIA ESTABLISHED
 FOR THIS TYPE OF CONTRACT. /4/ EQS AFSC, SCRC-3 HAS BEEN ADVISED
 OF THIS ACTION AND THE REQUEST FOR AUTHORITY TO USE A REDETERMI-
 NATION TYPE CONTRACT HAS BEEN WITHDRAWN BY THIS HEADQUARTERS.

SEP 13 1962

Original signed by
 CHARLES E. MOORE
 Colonel, USAF
 Chief, Procurement &
 Production Office

SSEKX/es

MR. GRIFKA

UNCLASSIFIED

UNCLASSIFIED 280

NOTICE
NOTICE

X AF

EQ OSD LOS ANGELES CALIF

AFSC ADDRESS AFB MD

UNCLASSIFIED SSH -1.3-9-11

SSH PENDING FILE COPY

AFSC FOR SCSK-3 SUBJECT: AUTHORITY FOR USE OF FORM C
 REDETERMINATION TYPE CONTRACT. /1/ REFERENCE TRX, SCSK-3 31-8-131
 GRANTING AUTHORITY TO USE FORM C FIXED PRICE REDETERMINATION TYPE
 CONTRACT. /2/ LOCKHEED MISSILE AND SPACE COMPANY HAS REQUESTED THE
 AIR FORCE TO CONSIDER NEGOTIATING THIS LETTER CONTRACT INTO A
 DEFINITIVE FIXED PRICE INCENTIVE TYPE CONTRACT, IN LIEU OF A
 REDETERMINABLE TYPE. /3/ THIS REQUEST HAS BEEN REVIEWED AND
 DISCUSSED BY THE AGEMA D PROGRAM DIRECTOR, TECHNICAL STAFF AND
 THE NEGOTIATION TEAM WITH LOCKHEED MANAGEMENT. SINCE THIS
 NEGOTIATION HAS CONTINUED OVER A LONGER PERIOD OF TIME THAN
 ORIGINALLY CONTEMPLATED, VERY LITTLE TIME WOULD REMAIN TO CONCLUDE
 THIS NEGOTIATION, PRIOR TO THE DATE THAT THE CONTRACT WOULD HAVE
 TO BE REDETERMINED, IN ORDER TO MEET THE LIMITATIONS ESTABLISHED
 BY ASPR. /4/ LOCKHEED'S REQUEST FOR A FIXED PRICE INCENTIVE

SEP 12 1962

Original signed by

CHARLES E. MOORE
Colonel, USAF
Chief, Procurement &
Production Office

SSH/K/es

MR. GRIFKA

UNCLASSIFIED
11 Sep 62

U S G O V T 3 8 7 8 1 9

FOR THE USE OF THE GOVERNMENT ONLY

CONTRACT HAS BEEN AWARDED AND THE GOVERNMENT HAS AGREED TO THE PROVISIONS AND CONDITIONS SET FORTH IN THIS CONTRACT. IN THE EVENT OF A CHANGE IN THE TERMS OF PROVISIONS AND CONDITIONS, THE DIRECTOR OF THE AGRA PROGRAM, AND THE AIR FORCE SECRETARY, THAT A FIXED PRICE INCENTIVE CONTRACT WOULD BE MORE ADVANTAGEOUS TO THE GOVERNMENT. THEREFORE, THE NEGOTIATION IS BEING CONTINUED WITH THE GOAL OF DEFINITIZING THIS PROCUREMENT AS A FIXED PRICE INCENTIVE TYPE CONTRACT.

121

SEP 17 1962

121-1012-1012/1012

10/1

10/1

1. A design specification for the self operated hydraulic actuator for the Agma D is expected to be available for examination and review on 15 September 1962 and for publication and distribution to the various potential vendors on 26 September 1962. It is the intention of the Agma D group to take several months to evaluate the bids to be submitted for this unit, and thus it is unlikely that any contracts will be let before early 1963. This approach is in accord with the policy suggested by Col Hum of diverting a major portion of the currently available Agma D funds to the IEP and permitting less critical items such as the actuator to be developed in a more leisurely fashion.

2. There is some question at this time regarding the desirability of incorporating an off-center gearballing capability into the system, although IEP has hitherto been insistent on this point. To gain on-center gearballing capability, the engine position centering ring in the booster adapter must be removed. If this is done, then it is conceivable that the unbalanced engine may oscillate to and fro during ascent under the influence of the booster dynamic environment. The capability of the actuators to ensure this type of motion, its effect on vehicle stability and the torques which might be imposed on the vehicle if the engine is in an off-center position when the ullage rockets ignite must be considered before the centering ring in the booster can be modified.

3. There are, to be sure, other methods of restraining the motion of the engine than the use of a centering ring. It may develop that the piston friction of the actuators will be quite adequate to prevent engine motion. In addition, it is the intention of the Agma D group at IEP to incorporate, at least initially, a locking device in the actuators themselves. This will consist of a spring loaded, piston operated solvent mechanism which will release the engine when the pump pressure has built up to a level adequate to permit the piston to overcome the spring which holds the mechanism in the locked position. The entire locking device will be removable so that if future testing should prove it unnecessary, it can be eliminated from the system without otherwise altering the actuator.

SIGNED

EDWARD J. CROW, JR.
 Lt Col, USAF
 Project Director, SSM/A-2

SSH

Production of Optional Kits under the -68 Contract SEP 24 1972

Lockheed Acat Corp
Missiles and Space Co
Attn: Mr. J. L. Schoenair
P. O. Box 504
Sunnyvale, California

1. The scheduling and production of optional kits to satisfy using program requirements has varied considerably in the past and it appears this condition will continue through the contract period. These fluctuations are due to changing program optional requirements and changing Agena D vehicle allocation as reflected in LMSC date table schedules. Part of the confusion in this area has been due to the learning process, but it appears that at this time we can delineate procedures to efficiently provide required optionals.

2. The optional kits including quantity are contractually covered in the -68 contract by Exhibit B. An optional equipment requirement list for each using program is attached and will be maintained by the Air Force Agena D office. This requirement list for individual using programs will not be changed without prior approval by this office. LMSC will provide the optional kits to satisfy using program requirements based on current date table schedules within the limits established in Exhibit B of the -68 contract. The using program requirement date for optionals is the date established in the date table schedule as program peculiar due dates. To effect minimum reaction time to program fluctuations a close liaison should be established between your scheduling people and Mr. Hazeltine's group at LMSC since his office is officially notified of program changes for impact and collation into date table revisions.

3. Establishing these ground rules should provide the LMSC Agena D organization the required contractual coverage and supporting information to effectively provide optional kits taking into consideration obsolescence, storage, repair, and program fluctuations.

HENRY A. FETCHER, JR.
Colonel, USAF
System Program Director for Agena

1 Atch
Using Program Rqmt List

229

SEP 27 1962

SSS

FY-62 and FY-63 Agena D Funding Requirement

**Secretary of the Air Force (SAFFA)
Wash 25 DC**

1. The following information regarding Agena D funding is submitted as requested by telecon on 30 Aug 62 by Mr. Lewis Moyer.
2. To clarify the Agena D funding status this brief paragraph summarizing the evolution of the Agena D funding from accelerated go-ahead on 7 November 1961 follows. At the inception of the program no Air Force RDT&E funds were available so a reimbursable fund concept was established and the E.A. and P.A. were issued to cover FY-62 requirements for both the basic 12 vehicle prototype contract and long lead for a 39 vehicle production buy at four vehicles per month. The funding guidance at this time was that the R&D costs associated with the basic contract would be amortized among using programs at \$800,000 per vehicle until all R&D costs would be covered. No R&D costs would be allowed on the production contract, but an advanced development program would be submitted and justified separately by the Agena D office and funded as an Agena D line item. All program users would program funds to transfer to the reimbursable account in the fiscal year of DD-250 delivery using \$2.1M vehicle during FY-62 and FY-63 and 1.3M for FY-64 and subsequent years. These per vehicle costs were submitted and justified by the using programs during the FY-63 budget cycle.
3. On 29 May 62 Hq AFSC message (SCCEB-29-5-141) revoked the above-mentioned funding guidance and established the following ground rules for Agena D procurement.
 - a. The Agena D program would be funded by using program funds on an incremental basis with funds to be available at inception of procurement action. The procurement lead time for the Agena D is 12

DOWNGRADED AT 12 YEAR
INTERVALS; NOT AUTOMATICALLY.
DECLASSIFIED: DOD OR 5200.10

~~SECRET~~

SSH-1068

SYMBOL				
DATE (SIGNATURE)				

months to DD-250 delivery to the using program.

b. Reimbursable funds can be utilized to incrementally fund Agena D's on firm orders for N.S.A.

c. General support (Central Eng'g, SCTB, DTV, Reliability, Logistic Support, Storage) costs to support the Agena D program will be pro-rated to the using programs.

d. An Agena D line item would be established and funded in FY-63 to cover advanced development (component improvement) and to complete the basic R&D contract.

4. As a result of this new guidance, all FY-62 reimbursable funds on the Agena D contracts were replaced by hard money. The source of these funds to clear the reimbursable account for FY-62 are shown in the following recap of FY-62 funding.

a. Basic R&D Contract AF 04(695)-21

348 Program Funds
162 Program Funds

Sub Total

Industrial Facilities
162 Program Funds

Total

b. Follow-on Contract AF 04(695)-68

461 Program Funds
823 Program Funds
698BJ Program Funds (FY-63)

5. FY-63 funding required to support the Agena D Program.

a. Agena D funds.

(1) Basic R&D Contract AF 04(695)-21. This contract

OFFICE SYMBOL				
NAME (SIGNATURE)			OFFICER	
ATTENTION			OFFICER	

The recently established funding and contractual procedures for procurement of Agent D vehicles, based on projected requirements, incur yearly costs that do not change due to program fluctuations during the fiscal year and as such become relatively

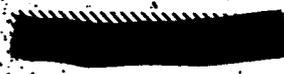
(3) The above FY-63 funding requirements are based on the contractor's cost proposal for a fixed price contract for the 39 production vehicles which is presently in negotiations plus contractor estimates for long lead and engineering support.



(3) Total FY-63 funds required from using programs.



(2) FY-63 funds required to protect long lead requirements for the 22 vehicles follow-on effort.



(1) FY-63 funds required to complete the 39 vehicle buy plus corporate, logistic, spare, storage and general engineering support.

b. Using program funds.

This program has been approved by HQ USAF but as yet funds have not been released.



FY-63 fund requirement
FY-63 funds received

(2) Advanced Development Contract AF 64(692)-191. This contract is to provide for improved reliability, productivity, mission adaptability and serviceability for the production Agent D.

The completion date for this contract is November 1963 with program funding required to carry the effort to completion.



FY-63 fund requirement
FY-63 funds received

Production quantities and as such, it is assumed as a fixed vehicle

These assignments to using programs are based on data from the end of July 62, with adjustments to reflect the change in Program 63. This schedule is being used as a base to provide some stability in using program financial planning for the stability these assignments will change as program requirements fluctuate. The Agency D vehicles are assigned using a revolving inventory which will assign the vehicles to programs as their need dates. The Agency D assignments, as shown in the following paragraph, should not be construed as firm; as program requirements change, the earliest Agency D will be assigned to the next program user.

[REDACTED]

OFFICE SYMBOL	ORIGINATOR				
NAME (SIGNATURE)					
DATE					

1962 funds utilized to replace initial working funds.



8. As indicated in paragraph 5.a.(2) of this letter, no funds have been received to date to cover the Advanced Development Contract. Due to the phase out of the basic R&D contract, it is imperative that funds be released immediately to provide contractual coverage for the Advanced Development Program to retain highly qualified L&SC engineering personnel that are vital to this program.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agency

Copy to:
Hq USAF (AFSSV-EQ)
Hq AFSC (SCGN)

~~SECRET~~

OFFICE SYMBOL	ORIGINATOR				
ME	SIGNATURE	<i>[Signature]</i>			
		11 Sept 62			

229



SEP 28 1962

FORM 37
MAY 62

Subject: First Article Configuration Inspection of S-011/13, 17-19 Sep 62

Lockheed Missiles & Space Company
ATTN: Mr. J. L. Sweeney
Department 68-01
Sunnyvale, California

1. Attached for your information is a copy of the report on the First Article Configuration Inspection (FACI) conducted by AFSSD at LMSC on 17-19 Sep 62. It is emphasized that this report is based on a sampling only and in no way is it considered to be a complete listing of all discrepancies.
2. The results of the inspection indicated that the documentation presented to the FACI Team was not adequate to define a configuration baseline for Agena D vehicles (AD-13 and up) at this time.
3. Acceptance of Vehicles AD-13 thru AD-18 will be based on interim approval of the Detail Vehicle Specification, System Test Specification, and the six module specifications. These specifications are herewith given interim approval and will be considered frozen.
4. An abbreviated FACI will be given each optional kit when it is first presented to the Air Force for acceptance to insure that the documentation has been corrected when necessary and is in compliance with the hardware.
5. We are planning to conduct another FACI coincident with the delivery of AD-19. In the interim, configuration management and control procedures will be applied. LMSC should review the attached report and take action necessary to insure that deficiencies in documentation and procedures are corrected prior to the next FACI.

Henry M. Fletcher, Jr.
 HENRY M. FLETCHER, JR.
 Colonel, USAF
 System Program Director for Agena

1 atch
 FACI rpt
 Copy to AFPR, LMSC

225

~~UNCLASSIFIED~~

ROUTINE
ROUTINE

X

AF

SSD LOS ANGELES CALIF

AFSC ANDREWS AFB MD

INFO: CSAF

UNCLASSIFIED SSH 28-9-33

ACTION AFSC FOR SCGH, COL HUEDEBERG; INFO CSAF FOR AFSSV-EC,
 COL KNEFFE. REFERENCE (1) SSH MONTHLY PROGRESS REPORT (SSH-1032)
 DATED 14 AUGUST 1962, (2) SSH MONTHLY PROGRESS REPORT (SSH-1075)
 DATED 13 SEPT 1962, (3) FY-64 TECHNICAL DEVELOPMENT PLAN FOR S-01A
 ADVANCED DEVELOPMENT (SSH-1087) DATED 24 SEPT 1962. THIS MESSAGE
 IN THREE PARTS. PART I. IN ALL THE REFERENCED DOCUMENTS YOUR HQS
 HAS BEEN ADVISED OF THE URGENT REQUIREMENT FOR RELEASE OF APPROVED
 FY-63 FUNDS TO SUPPORT THE AGENDA D ADVANCED DEVELOPMENT PROGRAM.
 THE APPROVAL OF 5.4M IN FY-63 FUNDS FOR THE ADVANCED DEVELOPMENT
 PROGRAM WAS BASED UPON ELIMINATION OF ALL R&D COSTS FROM THE
 AGENDA D PRODUCTION CONTRACT. GUIDANCE RECEIVED FROM YOUR HQS
 DIRECTED THAT ALL ENGINEERING EFFORT TO IMPROVE RELIABILITY,

SEP 28 1962

SEPT 62

SSHR

Maj Hegerle
3911

1 2

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agen

UNCLASSIFIED

SEE THE STATE'S COPY

MISSION ADAPTABILITY AND PROVIDE FOR SMALL PROJECT DEFENSEMENT

WOULD BE FUNDED UNDER THE ADVANCED DEVELOPMENT PROGRAM.

PART II. IN COMPLIANCE WITH THIS GUIDANCE THE AGENA D PRODUCTION CONTRACT HAS BEEN DEINITIALIZED EXCLUDING THIS REQUIRED ENGINEERING EFFORT. DUE TO THE PHASE OUT OF THE RED CONTRACT, IT IS IMPERATIVE THAT FY-63 FUNDS BE RELEASED IMMEDIATELY TO PROVIDE CONTRACTUAL COVERAGE FOR THE ADVANCED DEVELOPMENT PROGRAM TO RETAIN HIGHLY QUALIFIED IMSC ENGINEERING PERSONNEL THAT ARE VITAL TO THIS PROGRAM. THE PRODUCTION AGENA D CONTRACT CAN NOT BE SUPPORTED WITHOUT THE ADVANCED DEVELOPMENT CONTRACT. IF THESE FUNDS ARE NOT IMMEDIATELY AVAILABLE REQUEST YOUR GUIDANCE ON THE PRODUCTION CONTRACT BE REVISED TO INCLUDE THIS ENGINEERING EFFORT ON THE PRODUCTION CONTRACT. PART III. IN ADDITION TO THE ABOVE, THE ENGINEERING EFFORT REQUIRED TO SUPPORT ADDITIONAL REQUIREMENTS FOR THE NASA GEMINI TARGET CAN NOT PROCEED WITHOUT THE ADVANCED DEVELOPMENT FUNDS. THE LEAD TIME REQUIRED TO QUALIFY HARDWARE FOR THIS PROGRAM MAKES IT MANDATORY THAT FUNDS BE MADE IMMEDIATELY AVAILABLE.

MF

226

In Reply Refer to:
LMS/1063170
1 October 1962

Subject: Management of the S-01A Program

To: AFMSD (DCCA)
Attn: Brigadier General H. W. Powell
Air Force Unit Post Office
Los Angeles 45, California

Enclosure: (a) Program Management Paper

1. In accordance with the request made during our discussions in General Estes' office on September 20, 1962, we have prepared a so-called "White Paper" covering the management, engineering, and control procedures used in the successful accomplishment of the S-01A Program. These comments are submitted for whatever help or applicability they might have toward other programs. We have only described those functions which were significantly different from those used on other programs that we have had at LMSC. It should be emphasized that the contributions to the success of the program depended on the interrelations of both the Air Force and LMSC efforts.

2. I would like to emphasize what I believe are three of the more important factors which contributed to the success of the program.

- a. Clear-cut and short communication channels to a high level of final authority.
- b. Encouragement from this level of authority resulting in a high degree of enthusiasm, cooperation, and integration of the LMSC and Air Force Program teams.
- c. The support of the Projectized Program by a major industrial organization.

3. We recognize that most of the procedures used in the S-01A Program appear to be of the "For Motherhood - Against Sin" type, but as we all recognize, and as simple as it may seem, there is no substitute for good management effectively used. Dr. Charyk said this so very well in his Colorado Springs address on August 15 -- "Our ability to apply these simple maxims ... 'simple answers', 'clever solutions', 'original ideas', and 'realism' ... into practice will be a major factor in determining our place in the military technology role."

LOCKHEED MISSILES & SPACE COMPANY

L. Eugene Root
President

LER/JLS:sc

CONCLUSION

627

Of considerable importance to the successful accomplishment of the S-01A Program was the high degree of enthusiasm with which the program was initiated from very high levels in the Air Force and DOD organizations. Extraordinary, short and clear channels of communications in the Air Force were established by direction from the top central authority to whom both the LMSC and the Air Force Program Directors could obtain ultimate decisions in both contractual and policy matters regarding both the technical and financial aspects of the program. Extremely competent and highly inspired program directors were appointed for both the Air Force and Lockheed. Both directors were given the confidence of and the support of all higher management levels. Authority was given these directors to commit to verbal, "on-the-spot" agreements, which were later translated into technical and contractual requirements. A high degree of mutual trust and cooperation between these directors contributed much to the success of the program. This mutual trust was engendered partially because of the "skunk works" approach. This attitude gave the Air Force representatives a certain degree of freedom with regard to justification for expenditure of government funds that is not normally evident in other programs. Free interchange of information and discussion of each other's problems existed through integration of both the Air Force and the Lockheed management teams, abetted by the physical location of Air Force personnel within the Lockheed engineering area.

Careful consideration was given for inclusion within the LMSC Program Director's organization those functions which contributed directly to the successful achievement of the objectives without unnecessary

duplication of existing LSC organizations and capabilities. However, even though prioritization was utilized, the objectives of the program could not have been obtained without the total support of the major industrial organizations of LSC with all its accompanying centralized facilities.

The highest practical level of priority consistent with the importance of the program, in this case a D-11, was assigned and rigidly enforced. Availability of this high priority gave proper emphasis toward the provision of sufficient materials and manpower to achieve timely completion of objectives. The Air Force personnel with the responsibility for technical and financial controls worked in extremely close liaison with their LSC counterparts so that formal meetings were not required. By being assigned to the same enclosed work area the individuals had almost daily contact with each other in a continual review of problems and their solutions as well as being isolated from continual outside contact by interested, but non-contributing parties. The Air Force did an outstanding job in protecting the program from technical directive meetings and visitors involving groups of persons or education of individuals of limited contributory effort, thus preventing interference with the productive efforts of individuals assigned to the program. LSC likewise prevented interference by relieving the Program Director of many of the less significant statusing meetings and normal reporting functions.

Both the Air Force and LSC Program Directors, their management staffs, and engineering organizations were located within a closed area adjacent to the manufacturing final assembly facility. Access to the

closed area was controlled by means of locked doors opened only by key cards whose distribution was limited. Daily contact between all elements of the organization was encouraged and informality of communication was a key note. The enclosure of the program personnel was provided to discourage casual visitors and was highly successful in the accomplishment of this objective.

While funding was adequate to prevent excessive budget fluctuations, it was not provided in accordance with the original plan; however, flexibility of budget was allowed in both the intertransfer of funds and overtime expenditures to prevent costly delays pending approval of higher authority.

An early determination of objectives, requirements, and description of work was agreed upon and performance requirements were delineated prior to the major design effort. Program schedules and milestones were established early in a tight but timely schedule for both engineering and manufacturing accomplishments. This effort was a group activity including many, if not most, of the selected management team, both LMSC and Air Force, and at least the senior managers and representatives.

The Air Force team and LMSC managers and senior managers assisted in the preparation of basic program ROM's and negotiations for funds to accomplish their assigned tasks. LMSC managers were given clear assignments of the budgets negotiated in both amounts and man-rated time spans upon the completion of contract negotiations. They understood their direct responsibility for their adherence to these limitations to the same degree of emphasis as was placed upon them for the successful

630
were carefully selected at the beginning of the contractual effort to be compatible with the ideas of technical responsibility in order to provide consistency.

Air Force approval of vendor selections and actions was obtained "on-the-spot" with key personnel intimately involved in the decisions necessitating such selections. The technical Air Force personnel were free to sit in bidders' conferences, technical negotiations and design review meetings, and they did so whenever possible.

The Air Force waived requirements for detailed, formalized engineering reports and based their analysis and approvals on the same basic engineering reports utilized by the LSC design organization. Copies of these reports were available, if not distributed, to Air Force representatives merely for the asking and no limitation was placed on the number of copies or the circulation of IIC's, memo notes, stress notes, or design notes.

The Air Force waived requirements for formalized MIL Specification compliance of drawings and equipment specifications until after the finalization of the design. Red-lined drawings were used extensively with Air Force approval of the completed vehicle based on the successful accomplishment of a systems test.

GENERAL TRAINING

63/

Of primary importance in the timely completion of the S-01A Program is the fact that the program objectives were based on essentially a redesign of an existing space vehicle whose characteristics were relatively fixed, rather than a completely new design with all its associated development efforts. Many of the equipments utilized in the S-01A Program were used directly from the S-01 Program with little or no design change. The redesign of S-01 equipments that were required, however, was accomplished through a systems approach rather than a subsystems approach by a high degree of coordination between engineering groups.

The design philosophy or concept which detailed the limits and set the objectives for the design to provide a yardstick against which proposed variations were measured was conceived, approved, and widely distributed for the information of all concerned in the form of an advanced vehicle description.

The test philosophy which dictated the criteria to which the design was to be qualified, evaluated and accepted was likewise widely disseminated. In spite of the urgency of the program, full qualification of all components was required and a minimum of deviations were allowed designers against criteria established in the test philosophy.

The acceptance philosophy under which the equipments were purchased, tested and vehicles delivered was clearly defined and tailored to the objectives of the program through the issuance of clear, well-defined test plans.

The size of the engineering organization was carefully restricted to minimum essential numbers of people in order to keep the lines of communication short and to facilitate the use of verbal communications. Additional manpower, when required, was drawn from the central engineering organization for temporary use.

A team spirit was engendered by working together toward a recognizably difficult schedule and the creation of a protective atmosphere by establishment of a closed area restricting unnecessary visitors or interruptions. Engineering personnel were directed to maintain rapid and adequate communication between themselves and the manufacturing organizations which were physically located in close proximity to bring about a free interchange of ideas, information and rapid resolution of problems.

Since engineering design contains a considerable amount of technical judgment, it was decided to organize the design function into two separate groups to provide a check and balance of the design between systems and subsystems. A systems engineering group was responsible for the conceptual design of the overall vehicle systems and interfaces. This group maintained the "Advanced Vehicle Description", issued test plans and controlled the qualification, acceptance, and evaluation testing requirements. A second major group of engineers did the detailed design released for manufacturing, coordinated subcontractual efforts and prepared individual equipment specifications subject to the approval of the first group's reliability analysis.

Extensive use of engineering mockups and test vehicles was made for functional compatibility and qualification testing of prototype and pre-production

hardware. In total, there were three engineering sections in continuous use and five test vehicles, including a Development Test Vehicle, a Functional Mockup, a dynamic test vehicle and two structural test vehicles.

The initial engineering drawing system was highly simplified requiring only those drawings essential to tool, build, and service the vehicle. An internal, rapid release drawing system was established within the engineering organization to provide rapid handling of released drawings and quick response to revisions and changes to the shop. A system of drawing control was established which created a limited number of "controlled drawings". During the early phases of the program it was possible for an engineer to make a change by red-lining the "controlled drawings" without time consuming procedures of formal drawing change releases. Manufacturing organizations were cautioned against the use of other than "controlled drawings" in the fabrication or assembly of hardware. Design freeze was not achieved as early as originally planned due to certain clarification of using program objectives which resulted in structural changes and certain functional equipment inadequacies discovered during final assembly checkout and flight of the first few vehicles. As planned, the MIL Specification drawings were produced as soon as the design had been frozen and were done on the basis of a re-draw program from the earlier "skunk works" drawings. Initial tooling was of the simplest type to achieve program objectives. Although full interchangeability was not obtained early in the program, the design incorporated the provision for such interchangeability based on the availability of hard tools. No detailed tool drawings or Air Force approval was required until design maturity had been achieved with the release of prototype drawings.

[REDACTED]

Program control was achieved through the utilization of a staff function of the LMSC director. This organization maintained cognizance of engineering released and manufacturing schedules as well as budgetary and financial status of the operating organizations. Important administrative, budgetary, design, and hardware schedules were statused and published weekly in a bulletin to provide managers a measure of their performance. Reprogramming of objectives was only permitted through the preparation of brief program plans by this organization which clearly showed recovery schedules against the original schedule and responsible actions by all contributing organizations.

Pipeline meetings were held weekly, attended by all managers of the key managerial team, as well as responsible representatives of the major supporting organizations of LMSC. Members of the Air Force program office were in attendance and no attempt was made to minimize the problems or the evidences of poor performance on the part of any individual. The Air Force program officers worked with and contributed to the resolution of program problems in detailed, direct and daily contacts with LMSC managers. The format of these meetings consist of a brief review of the progress made, a review of status (both contractual and hardware) and specific statements of problems and actions required. The reporting methods were brief, but concise, in both budget and technical problems. Solutions and resolutions of problems were clearly established whenever possible in this meeting with extremely few exceptions consisting of those problems which had to be referred to the higher central authority.

In all cases, decisions were rapid and forthcoming to satisfy all open issues and direct assignments were made on problems resulting in an early resolution.

Rigid control was maintained by all managers, both Air Force and LMSC, in the timely closure of their assigned tasks. Engineering decisions were not allowed to be deferred and designs were frozen as soon as they satisfied the program objectives. Continual minor improvements, however desirable, were not generally allowed.

227

~~CONFIDENTIAL~~

1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Subj: Liquid Rocket Engine Data

Request to fill out engine data sheets for improved version of the engine for collection of other information and transmittal to Mr. Schwere of the 652nd Test Group.

636

1st Ind (SERIAL-2/Capt Watts/3013)

SPD, AFSD, Los Angeles 45, Calif

TO: STVSP (Maj Hoo)

OCT 5 1962

Attached is the information requested in the basic letter.

ROBERT K. LE BECK
Lt Colonel, USAF

for

EDWARD F. BLUM, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agons

1 Atch
N/C

If inclosures are withdrawn (or not attached) the classification of this correspondence will be Unclass

~~CONFIDENTIAL~~

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

(c) Helium gas is supplied to pressurize the oxidizer pump shaft lip seal at a pressure of 5.0 ± 3 psig.

(d) Ten cubic inches of nitrogen gas at a working pressure of 1500 psi are supplied to accomplish a fast shut down after the initial period of engine operation of a dual burn flight.

638
14. Reliability Data:

- a. There have been 45 flights using this engine. Of these flights it had two engine operations giving a total of 60 engine starts. The second engine operation of one flight was unsuccessful and is the only time this engine, when given an opportunity, has failed to operate.
- b. The engine reliability program established a reliability of .801.

15. Special Features and Remarks:

- a. Number of umbilicals required in a launch vehicle:
 - (1) Two for propellant filling
 - (2) Two for propellant tank venting
 - (3) One for high pressure nitrogen source.
 - (4) One for high pressure helium
 - (5) One for electrical source. This one would in all probability be combined with the main vehicle electrical umbilical
 - (6) One for air conditioning to maintain propellant temperatures in the tanks
 - (7) An overboard scavange line is required for the pump lip seal cavity drainage. /gun uses a plastic tube with a gillotine.
- b. No days of pre-launch check-out time are required for the propulsion system.
- c. The engine has a shelf life of two years provided that after the first year it receives a complete flushing.
- d. Remarks: The X1501-21-0 engine has been notified to the X1501-2A-11 configuration by several minor modifications. The main one being a change in the turbine exhaust duct design. In May 62 the Bell Aerosystems Company was authorized to modify the X1501-2A-11 to provide for multiple starting (X1501-2A13) by removing the present solid propellant starting configuration and provide starting by direct ignition of the propellants in the gas generator.

~~CONFIDENTIAL~~

CONFIDENTIAL
DECLASSIFIED AFTER 25 YEARS
DOD DIR 5200.10

~~CONFIDENTIAL~~

16. Timeline:

- 639
- a. Initial design date: August 1959
 - b. Preliminary flight rating test date: (completed) October 1960
 - c. Flight date: The engine was flown the first time on 7 December 1960.

~~CONFIDENTIAL~~

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

1. 2/21 1962: 307-722, 123

OCT - 8 1962

Ground Rules for Management of the AC-1 System

Air Force/Aerospace Corp
11111 11111 Co
11111 11111 Division
11111 11111 Ave
11111 11111

1. In order to establish an understanding of the Air Force/Aerospace Corporation role in the management of the AC-1 Automatic Checkout System, the following paragraphs will delineate the ground rules to be followed during the course of the AC-1 development. It is recognized that the AC-1 development represents a formidable task, which requires close working relations to achieve the optimum system to meet Air Force requirements. It is hoped that conformance to these ground rules will facilitate progress and insure satisfactory equipment performance.

2. Reliability - The following documentation is to be submitted:

a. Reliability Demonstration Plan prepared by LMSC and submitted to the Air Force/Aerospace Corporation for approval by 120 days after contract award.

b. Subcontractor Reliability Plans shall be submitted to the Air Force/Aerospace Corporation for information. Copies of related LMSC correspondence either approving or requesting changes to the subcontractor specifications should also be submitted.

3. Maintainability - The following documentation is to be submitted:

a. Maintainability Plan generated by LMSC for AC-1 is to be submitted for Air Force/Aerospace Corporation approval.

b. Subcontractor Maintainability Plans are to be submitted for Air Force/Aerospace Corporation information, along with related LMSC correspondence concerning these plans.

4. Radio Frequency Interference (RFI) - If there are contractual problems regarding the timely preparation and submittal of LMSC or subcontractor RFI documentation, this office should be informed. The following is the required RFI documentation to be submitted in accordance with LMSC 920493A:

Lt Briones/cam

5 Oct 62

228



OCT - 8 1962

Mr. J. L. G...
Mr. J. L. G...
Mr. J. L. G...
Mr. J. L. G...
Mr. J. L. G...

1. In order to establish an understanding of the Air Force/Aerospace Corporation's role in the management of the AC-1 Automatic Checkout System, the following paragraphs will delineate the ground rules to be followed during the course of the AC-1 development. It is recognized that the AC-1 development represents a formidable task, which requires close working relations to achieve the optimum system to meet Air Force requirements. It is hoped that conformance to these ground rules will facilitate progress and insure satisfactory equipment performance.

2. Reliability - The following documentation is to be submitted:

a. Reliability Demonstration Plan prepared by LMSC and submitted to the Air Force/Aerospace Corporation for approval by 120 days after subcontract award.

b. Subcontractor Reliability Plans shall be submitted to the Air Force/Aerospace Corporation for information. Copies of related LMSC correspondence either approving or requesting changes to the subcontractor specifications should also be submitted.

3. Maintainability - The following documentation is to be submitted:

a. Maintainability Plan generated by LMSC for AC-1 is to be submitted for Air Force/Aerospace Corporation approval.

b. Subcontractor Maintainability Plans are to be submitted for Air Force/Aerospace Corporation information, along with related LMSC correspondence concerning these plans.

4. Radio Frequency Interference (RFI) - If there are contractual problems regarding the timely preparation and submittal of LMSC or subcontractor RFI documentation, this office should be informed. The following is the required RFI documentation to be submitted in accordance with LMSC 220431:

It Expires/om

5 Oct 62

8. LSC Interference Control Plan, Test Plan and Test Report to be submitted for Air Force/Aerospace Corporation approval.

b. Subcontractor Interference Control Plans, Test Plans and Test Reports to be submitted for information, along with related Lockheed correspondence.

5. g412D submittals: All data submittals required by MIL-D-9412D shall be submitted to the Air Force/Aerospace Corporation. Further guidance on g412D submittals will be provided at a later date.

6. Equipment Development - A detailed schedule of significant equipment development milestones shall be submitted to the Air Force/Aerospace Corporation and updated as required. The Air Force/Aerospace Corporation should be immediately informed of any schedule slippage which could impact the system ready for use date. The Air Force/Aerospace Corporation team shall be informed of all design reviews, and shall attend where possible. Data such as subcontractor progress reports shall be submitted to the Air Force/Aerospace Corporation for information.

7. Programming - A detailed computer programming schedule shall be provided, indicating the LSC programming effort and the subcontractor programming effort. Programming progress reports shall be submitted to the Air Force/Aerospace Corporation.

8. Specifications - Major changes to the AC-1 specifications (LWDC 141309, 141310, 141311, 141312, VA-030) shall be submitted to the Air Force/Aerospace Corporation for approval. In cases where schedule could be impacted, verbal approval will be provided followed later by the formal specification change. The Air Force/Aerospace Corporation will be informed of all specification changes.

9. To expedite timely review of technical data, copies of all technical documentation pertinent to the AC-1 system shall be submitted to Aerospace Corporation and the S-01A AGC Division (SACB).

SIGNED

JOHN B. FURBER, JR.
Lt Colonel, USAF
Chief, S-01A AGC Division

Copy to
SACB (Jay Harsh)
Aerospace Corp (Mr. Stenke)
AFRO LWDC SV
AFRO LWDC VA
LWDC SV (Mr. Swanson)

UNCLASSIFIED

H. F. BECKER
CONTRACTING OFFICER

1 1

MR. H. F. BECKER
4115 RAD

SSRCK

1962

OCT

12

SIGNED, H. F. BECKER, CONTRACTING OFFICER
PERIOD NOT TO EXCEED THREE (3) MONTHS FOR EACH VEHICLE, INCLUDING:
MAXIMUM OF TEN (10) S-01A VEHICLES AND ASSOCIATED HARDWARE, FOR A
THE CONTRACTOR SHALL PROVIDE ADEQUATE STORAGE CAPACITIES FOR A
SUBJECT WORK STATEMENT IS HEREBY REFERRED TO HEAD AS FOLLOWS:
695-63-136 AND WORK STATEMENT THEREIN. PARAGRAPH 3.2.1 OF TAB 3 OF
ACTION FOR MR X HAGERTY - FOR INFO RE REFERRED - REFERENCE REF NO. 04-

UNCLASSIFIED SSI 12-10-23

LOCATED LEFT CORP HST & SPACE CO SURVIVAL CASE
ALSO LOCATED LEFT CORP HST & SPACE CO SURVIVAL CASE
AND LOS AREAS CASE

11

1

UNCLASSIFIED
UNCLASSIFIED

UNCLASSIFIED

129

SSS

Agena Presentation

15 Oct 62

SSC

1. At the direction of Hq USAF, a presentation was made to Hq AFSC on 9 October and to Hq USAF on 10 October. Subjects covered were Agena D production contract and Agena Advanced Development funds requirement.

2. The presentation as shown to you on 5 October was approved by General Ritland and staff. General Thurman permitted the presentation as prepared to be made to Dr. Charyk and Mr. Imirie. During the presentation to Dr. Charyk, General Thurman expressed his reservations relative the lack of a provision in the contract for Contractor penalty. General Thurman asked for and was given by Mr. Imirie the authority for approval of the -68 contract. On 11 October, General Thurman through General Keeling issued instructions to General Powell to delay manual approval. A letter with guidance as to action to be taken has been written to SSD.

3. The funds for the Advanced Development of the Agena were not released by DDR&E. Dr. Charyk directed that we relate the component improvements to individual program requirements. I am endeavoring to do this although it is contrary to the Agena D management philosophy previously approved by Dr. Charyk. I plan to return to USAF within two weeks. You and General Evans will review the material to be presented.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

~~CONFIDENTIAL~~

231

ROUTINE
ROUTINE

X

AF

SSD LOS ANGELES CALIF

AFSC ANDREWS AFB MD

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

INFO: CSAF

CONFIDENTIAL-SSH

15-10-28

ACTION AFSC FOR SCGN, COL NUDENBERG; INFO CSAF FOR
AFSSV-EQ, COL KEEFE. REFERENCE (1) AGENA D PRESEN-
TATION AT HQ AFSC AND HQ USAF BY COL FLETCHER ON
9 - 10 OCTOBER 1962. (2) SSH MONTHLY PROGRESS REPORT
FOR SEPTEMBER, DATED 12 OCTOBER 1962. IT IS REQUESTED
THAT YOUR HQ PROVIDE REQUIRED AUTHORITY TO EXTEND
THE AGENA D PRODUCTION THROUGH JUNE 1964. THE
CONTRACTOR IS PRESENTLY CONTRACTUALLY COVERED BY
LETTER CONTRACT AF 04(695)-194 TO PROTECT LONG LEAD
REQUIREMENTS FOR AN ADDITIONAL 22 VEHICLES AT 4
VEHICLES PER MONTH WITH LAST DELIVERY SCHEDULED IN

1502
OCT 15 1962

OCT 1962

SSHR

Maj Hegerle
3911

1

2

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

SSD LOS ANGELES CALIF

DECEMBER 1963. THE 12 MONTH LEAD TIME REQUIRED TO PROTECT ORDERLY NON-INTERRUPTED AGENA D PRODUCTION REQUIRES ADDITIONAL CONTRACTUAL AUTHORITY BY JANUARY 1963 FOR VEHICLE DELIVERY IN JANUARY 1964. TO AVOID ANOTHER LETTER CONTRACT IT IS REQUESTED THAT YOUR HQ EXTEND THE AGENA D PRODUCTION THROUGH JUNE 1964 NO LATER THAN 22 OCTOBER 1962. THIS WILL ALLOW SSH TO NEGOTIATE THE COMPLETE FY-63 AGENA D REQUIREMENT ON AF CONTRACT AF 04(695)-194 IN JANUARY 1963 IN COMPLIANCE WITH HQ GUIDANCE ON LETTER CONTRACTS. DELAY IN RECEIPT OF ADDITIONAL AUTHORITY WILL NOT PROVIDE THE PROCUREMENT LEAD TIME NECESSARY TO AVOID A LETTER CONTRACT. Sep 4.

~~CONFIDENTIAL~~

OCT 16 1952

1st Ind (SEC)

AFSD, AFSD, Los Angeles 45, Calif

TO: COVER

1. Reference paragraph 1a of the basic letter. Present plans are that the XLR-1-21-13 (BAC Model 6247) engine will be identified as the alternate basic engine for the Agena D vehicle. However, only the vehicles (basic AD 13's) delivered as Gemini Target Vehicles will have the XLR-1-21-13 engine installed at delivery.

2. Reference para 1b of the basic letter. At this time SSI has been unable to commit contractually for any of the changes discussed in the NASA Program Status Report Meeting held at AFSD on 2 October 1962. It is suggested that NASA be requested to review the list of possible changes discussed to determine the necessity for any of these changes in order to meet their program requirements.

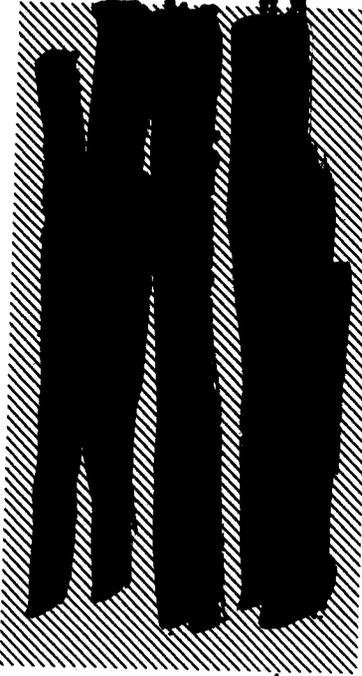
3. It is anticipated that a decision will be made concerning the improvements to be incorporated into Agena D by 1 November 1962.

SIGNED

HENRY H. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

233

OCT 18 1962



Special Missions

... a try on 9 and 20 October 1962.

... data for change and retro-fit
... as thrust requested (SR)

b. ... and for protection of the S-01A from aerodynamic loads
by use of a cylindrical barrel ahead of Station 247.

2. Lack of adequate data and analysis prevented the validation of the
requirements. While the source of the original criteria was determined,
there also it was published have left two major contradictions which
must be resolved before the changes can be considered valid requirements.

3. The cylindrical section which is presently in the mission peculiar
equipment is simply another means of bypassing the lack of complete
tests and analysis. At this time, it must be considered as a safety
factor which the using program allows to apply rather than a definite
requirement.

4. That effort and analysis necessary to resolve the contradictions is
in process, and, while no official schedule exists, can be expected to
be complete by 1 November 1962.

SIGNED

JOHN A. FLEBELKORN, Capt, USAF
Requirements & Programming Office

1 Atch
Appendix I

Copy to:
S240 (Col Washington)

SSER

Capt Flebelkorn/jrn

15 Oct 62

1. The requirements for change in S-OIA design due to its use on a Transit Reentry Vehicle (TRV), and, further, the requirement the S-OIA should contain in a mission peculiar forward section were evaluated on a try on 9 and 10 October 1962.

2. Considerable discussion on 9 October 1962 dealt with the recommended changes being proposed by the S-OIA organization to fulfill the loads requirement identified by the research departments of DSC. Four such "Changes" were recommended.

- a. Change pin-pushers holding the horizon sensor fairings.**
- b. Redesign the tank fairings for higher crushing loads.**
- c. Strengthen the structural ring at the separation plane.**
- d. Stiffen the structural ring at the base of the Booster Adapter.**

Changes a and b were stated to be necessary due to a higher differential pressure existing over the vehicle caused by higher dynamic pressure vector arising from BAT flight. Changes c and d were recommended due to higher bending loads while c had a contributing factor of poor material properties.

3. A discussion of the appropriate point for change, if required, indicated that DSC, including the using program representative, preferred having the effort done by S-OIA. Most of the rest of the day was expended in discussion of the basic principles used by the research departments in establishment of their criteria. A vital point was the reluctance of those groups to consider the mission peculiar equipment separately from the S-OIA in terms of design criteria. This reluctance to consider S-OIA as hardware in being and to define requirements based on it caused a review of basic data which was performed on 10 October.

4. The differential pressure criteria which caused a and b is derived from wind tunnel data of pressure distribution over a vehicle. This data, by definition, is based on free stream ambient pressure. Since wind tunnel data is being verified, the DSC approach has been that all analysis is correlated to flight ambient. From this, an analysis of ambient to internal pressure is made (containing a 0.8 psi uncertainty) and the criteria established. Test data taken on two early flights which gave differential pressure curves the skin was treated in a complex manner in order to verify wind tunnel data without attempting to verify design criteria directly. The result is that all criteria produced contain a factor of 0.8 psi for uncertainty. S-OIA criteria, including this uncertainty, is 1.5 psi. All data that was available stated that the maximum crushing pressure should be about 0.5 psi for non-BAT and 0.7 psi for BAT flights. If one considers that flow into or out of the vehicle

is a function of pressure ratio, and only indirectly a function of ambient pressure, the need to increase the criteria for the tank failure (change b) becomes hard to justify.

5. The burst pressure on the forward section, caused by external aerodynamics; is the criteria for the change to the pin-gushers. This criteria assumes a sealed forward section, or at least so little leakage that it does not influence either the differential pressure or the venting path. This assumption was based on the data from the S-TA test taken at fairly low differential pressures. The leakage in that test was increasing markedly as differential increased, but the increase was not considered to be supported by sufficient data to alter the criteria. A limit pressure differential test was run and seemed to indicate a very high leakage rate, contradicting the assumption on sealing, but this was discounted because differential pressure was not, or could not, be held long enough for stable conditions to occur.

6. Changes c and d are recommended by INSC for AD-9 through AD-17 on a retro-fit basis in order to make the S-OLA vehicle capable of withstanding the criteria which has previously been worked into AD-18 and up. Change c was also stated to be necessary due to reduced material properties of forged rings. The criteria was originally established by calculation of basic aerodynamic parameters due to the lack of test data within INSC. Since the original criteria, Douglas has supplied wind tunnel test data on a similar configuration. Application of the test data reduces the load requirement substantially. In fact, if the Douglas data is correct, the original criteria for AD-9 makes the vehicle strong enough to withstand the 99% winter wind when boosted by TW. The Station 492 ring changes from definitely requiring redesign to having a marginal margin of safety, retaining a full factor of safety. This is not intended to criticize the criteria for AD-18 and up, which now appears conservative. At the level of knowledge then in existence, no other path could have been taken. It does point up the effect of design change without adequate data. An auxiliary effect of the revised criteria is that trajectory analyses, based on the INSC calculations of basic parameters, indicate that the vehicle would be unstable if they are correct. Application of the Douglas test data indicates a stable vehicle results. A possible conclusion or extrapolation is that if the vehicle is stable, no change is necessary. Another conclusion that can be reached is that the TW boosted vehicles are an extremely sensitive configuration.

7. Two major contradictions exist:

a. The hardware test data does not support the assumptions used in the differential pressure criteria.

b. The aerodynamic data differs between INSC and Douglas, with INSC calculations indicating an unsatisfactory configuration might exist.

Until such considerations are received, any change would have to be considered a safety factor and/or factor to a final fix.

8. A specific request was made by Colonel Worthington to validate the need for a cylindrical section ahead of the Agma D to protect it. This section is necessary only if either of two conditions exist. First, the obvious condition of needing additional volume for mission peculiar equipment would find this value convenient; second, if the Agma forward section cannot accept, structurally, the high burst load involved in theoretical aerodynamics and further does not leak sufficiently to reduce the pressure differential, some protection or redesign is necessary. A definite answer must then wait for completion of analysis described in the following paragraph.

9. Efforts under way at the present include a parametric study of the effects of leakage in the forward section which should be complete during the week of 15 October 1962, and a differential pressure leak test of the forward section hardware. These efforts should resolve the need for changes a and b. IXX and Douglas are attempting to resolve the differences in the aerodynamic parameters.

10. I recommend that action or approval of these changes in the basic B-71A protection be withheld pending completion of analysis. There is considerable doubt in my mind that any retro-fit will be necessary at

all. Further, I question whether protection by mission peculiar cylindrical structure will be needed. If the testing program must make an early decision, they may wish to apply a safety factor by addition of the structure or change of the pin-joint, wholly at their convenience.

234

SC:

AFPR Logistics Surveillance of Program S-01A

19 Oct 62

**AFPRO (Col Voyles)
Lockheed Miss & Space Co
PO Box 294
Sunnyvale, California**

1. Reference is made to SSH letter dated 4 Jun 62, subject: **AFPR Surveillance of -68 Contract Spares Procurement and AFPR reply RWRM(F) dated 22 Jun 62.**
2. In the intervening period the scope of S-01A activities has expanded significantly, and this office considers it appropriate to outline again the areas within the purview of the Air Force Plant Representative's Office where SSH will expect support.
3. Specific areas requiring AFPR logistics surveillance are:
 - a. -21 Contract. Analysis and recommendations regarding the revisions to the priced spare parts list. Surveillance of LMSC logistics management to assure that assets available from the -21 contract are properly applied to requirements of the -68 follow-on production contract.
 - b. -68 Contract. Continuous surveillance of LMSC actions to establish and maintain accurate requirements computations in support of the spares buy. Analysis and recommendations regarding the revisions to the priced spare parts list. Supervision of LMSC integration of logistics actions between this contract and the follow-on production contract.
 - c. Repair and Storage Contract. Surveillance over LMSC in-house maintenance and modification activities and sub-contracting efforts in support of this contract. Analysis of LMSC proposals leading to fabrication and/or purchase of bits and pieces to support the maintenance and modification effort. Supervision of LMSC storage of the S-01A vehicles.

d. Recycled Components. Surveillance of basic Agena D components removed by using programs to assure that LMSC returns these items to the spares inventory or to the sub-contractor to provide reuse to the best interests of the Air Force and that proper control of these items is maintained.

e. All S-01A Contracts. Surveillance of LMSC management actions in the warehousing, stock control, disposal and related materiel control functions supporting this program.

4. Your comments and/or concurrence of the above objectives would be appreciated.

FOR THE COMMANDER

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

2 Atch

1. SSH ltr 4 Jun 62

2. RWRMM(P) ltr 22 Jun 62

235

Administrative Services Unit

Request for Information for S-01A Vehicles

OCT 22 1962

Dear Sirs:

1. Enclosed are questions pertaining to S-01A vehicle optional equipments, and the necessary to establish the optional kit requirements for each program including the S-01A vehicle.

2. It is requested that request optional kit requirements be established for the engine, gearbox, Central, TGG, Mibus, Babcock, and OAO Program vehicles. As most planning decisions, a reply is requested by 31 October 1962. This office will be happy to assist you in the determination of your optional requirements.

SIGNED

W. L. KENNEDY, Major, USAF
Chief, Requirements & Programs
Aircraft Program Director for Agon.

SSER

W. J. Barnes/jrm
22 Oct 1962

236

OCT 22 1962

SSH

Cost Source Justification, Contract: A-64(575)-221

SSH

1. This cost source justification is prepared as required by SSG Program and Production Procedure No. 12, dated 24 April 1962, and AFR 3-102(c).
2. It is proposed to award the Lockheed Aircraft Corporation, Lockheed Missiles and Space Company, Sunnyvale, California a contract for the repair, maintenance and storage of Agena D vehicle spare parts and vehicles for the following reasons:
 - a. Lockheed Missiles and Space Company is presently fabricating, assembling and delivering Agena "D" vehicles and associated spare parts to the Air Force under a production contract.
 - b. As directed by higher authority, the rate of delivery of Agena D vehicles exceeds the use rate, and vehicles must be stored. This requirement is so that vehicles will be available for immediate use for priority, special, or emergency programs.
 - c. The vehicles must be stored in a controlled environmental condition in the same area or adjacent area to the manufacturing facilities.
 - d. WASC at the direction of this headquarters allocated storage space in a new facility, expressly designed for the Agena D production for this purpose. This area is completely suitable to the peculiar requirements of the hardware.
 - e. The production contract provides only for the delivery of spare parts per existing Air Force specification. Changes to Air Force specifications must be incorporated into both the vehicles and the spare parts by personnel familiar with the specifications, procedures and hardware.
 - f. The vehicles and spares must be inspected, maintained, updated and rotated in accordance with existing Air Force specifications.

SSH/cs

17 Oct 62

3. It would not be in the best interest of the Government to invest in the training of new personnel at another source and duplicate existing trained personnel. In addition, duplication of certain transporters, special handling tools and fixtures, facilities, etc., would be required. No expensive containers or transportation is required when the existing Lockheed facilities are utilized. Also, any changes to the hardware can be expedited, in that communications are more direct within one company than it would be between two companies. No additional Air Force personnel are required to monitor this program at Lockheed.

4. Consideration was given to the possibility of follow on requirements being procured on a competitive basis and continuing consideration along these lines will be made.

5. This requirement is of an urgent nature, and must be implemented immediately. Time is not available to create a training program or to establish the required facilities, handling equipment, and procedures at another location.

6. Selection of Lockheed Missiles and Space Company as the contractor for this effort is therefore considered to be in the best interest of the United States Government.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
S-01A Space Project Directorate

~~CONFIDENTIAL~~
237



SSS LSC ENGINE CALIF

LOCKHEED ACFT CORP MISSILE & SPACE CO SHERMAN, CALIF (MAILED)

INFO: AFPO, LOCKHEED ACFT CORP MISSILE & SPACE CO, SHERMAN, CALIF

INFO: WSPC, MURTSVILLE, ALA

Copy to:
SSVZR
(Maj Albert)

UNCLAS SSN 23-10-37

FOR H. T. LUCKIN, T. J. ANDERSON, AND L. R. VIGLIANO. INFO AFPO FOR
RFD, WSPC FOR H-144-A, P. DUERR.

I. REFERENCE A: XLR81-BA-13 STAR: SYSTEM PRESENTATION AT LMSC
12 OCT 62, B: TMI SSVZR 16-10-231, DATED 16 OCT 62 C: TMI
LMSC/A30651A/91-22 SUBJ: MULTIPLE START METHOD DATED 18 OCT 62;
THE RECOMMENDATION OF THE LOCKHEED MISSILES AND SPACE COMPANY
CONTAINED IN TMI REFERENCE C IS ACCEPTABLE TO HQ SSD, I.E., THAT THE
START TANK SYSTEM BE ADOPTED FOR THE XLR81-BA-13 ENGINE (BILL MODEL
2247). LMSC IS DIRECTED TO PROCEED WITH THE DEVELOPMENT OF THIS
ENGINE.

II. ORDERLY WORK STOPPAGE OF DEVELOPMENT TESTING ON THE SUCTION
PRESSURE SYSTEM IS INTERPRETED TO INCLUDE DOCUMENTATION OF ALL

23 080
OCT 1962

SSMIA

ROBERT E. LE BECK, LT COL, USAF/vjq
R&D 3740 1 2

SIGNED

EDWARD F. BLUM, Lt Col, USAF
Chief, Vehicle Engineering Div
System Program Director for Agena

UNCLASSIFIED

SND LOS ANGELES CALIF

156

ANALYSIS AND TEST DATA IN REPORT FORM. REMAINING DEVELOPMENT TEST ACTIVITIES SHALL BE CONFINED TO THE ABSOLUTE MINIMUM ESSENTIAL. TEST HARDWARE PROCUREMENT ACTIVITIES IN PROCESS FOR THE SUCTION PRESSURE START SYSTEM SHALL BE EVALUATED AGAINST THE NEEDS OF OTHER GEMINI PROPULSION SYSTEMS DEVELOPMENT PROGRAMS; HOWEVER, PROCUREMENT ACTION BY BELL AEROSPACE CO SHALL BE DEFERRED REPEAT DEFERRED UNTIL FURTHER NOTICE.

III. PRESENT PLANS ARE THAT THE XLR-BA-13 (BAC MODEL 8247) ENGINE WILL BE IDENTIFIED AS THE ALTERNATE BASIC ENGINE FOR THE S-01A VEHICLE. HOWEVER, ONLY THE VEHICLES (BASIC AD 13's) DELIVERED AS GEMINI TARGET VEHICLES WILL HAVE THE XLR-BA-13 ENGINE INSTALLED AT DELIVERY.

SSZ/1-2; Regalia/391;

Agenda D C&C Optional Equipment

SSO (Col Hedrick)

1. Reference SSZ Policy Memorandum #22, Agenda D Optional Equipment Procurement Policy, dated 25 Jan 1962 (attached).

2. The Agenda D program office has the responsibility of insuring that all optional equipment is designed, developed and qualified to be compatible with the Agenda D vehicle. If re-engineering of any airborne satellite control hardware becomes necessary to insure compatibility with the Agenda D vehicle, the procurement decision for that item will be resolved on a case-by-case basis between SSH and SSZ.

3. The selected satellite control optional equipment procured through SSO, such as transponders, decoders and transmitters that mate with adapter kits procured through the Agenda D office, have undergone considerable re-design since the inception of the Agenda D. These changes have been made unilaterally by SSO in response to using program desires, with the Agenda D office reacting to stop procurement and/or re-design of adapter kits and AGE. The Agenda D C&C adapter kits are procured under the production contract and assigned on a first in first out basis to satisfy using program requirements. Changes to C&C equipment procured through SSO without complete Agenda D review serves to negate the advantages gained under Agenda D standardization.

4. It is requested that all changes to C&C optional equipment be processed through the Agenda D Configuration Control Board to insure compatibility and orderly improvement to the Agenda D.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agenda

1 Atch
SSZ Policy Memo #22
dtd 25 Jan 62

6-1-62

~~CONFIDENTIAL~~

259

~~CONFIDENTIAL~~

NOV 01 1962

SSHR/Maj General/111

Agenda D FY-63 Funding Requirements to Support NASA Program Requirements

SSVR

1. The FY-63 Agenda D costs for NASA programs has been established as 8.2M (reference attached SSHR letter, SSH-1052 dated 11 Sept 1962.)
2. These costs are based on Data Table 19C dated 26 July 1962. Based on established SSG policy (policy memorandum attached), program funds allocated to support this effort will not be reprogrammed due to changing program requirements without SSG approval.
3. The revised Agenda D requirement schedule for Gemini reduces your program's requirement for Agenda D's from 9 vehicles to 8 vehicles by elimination of the DTV. The first four Gemini vehicles fall into the FY-63 funding period with 2 vehicles @ 1.3M and 2 vehicles @ .6M for a total of 3.8M for FY-63.
4. The total Agenda D costs for the 8 vehicle Gemini program will be 3.8M in FY-63 and 6.6M in FY-64 for a total of 10.4M. This 10.4M provides for the total costs of 8 Gemini vehicles including spares and optionals, plus a pro-rated share of logistic support, storage, repair, and general engineering support associated with the Agenda D production program. These costs are based on NASA furnishing the model 8247 multi-restart engine with Agenda D responsible for modification and installation on the S-01A vehicle.
5. The total FY-63 NASA program funding requirement to support NASA Agenda D requirements is 8.2M broken down by program as reflected in the referenced letter attached. It is requested that these funds be made available as soon as possible.

SIGNED

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agenda

- 2 Atch
1. SSHR ltr, SSH-1052 dtd 11 Sept 62.
 2. SSG Policy Memo dtd 4 Sept 62.

UNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

SSH-1106

240

NOV 02 1962



Lockheed Missile & Space Company
ATTN: Mr. R. R. Kearns
P.O. Box 534
Sunnyvale, California

1. Reference: letter LMSC/A-064742, Dept. 61-65, Mr. R. R. Kearns to Col H. M. Fletcher, dated 23 October 1962; subject: S-01A Vehicle Assignment Philosophy.

2. The responsiveness of LMSC in establishing the requested first-in first-out assignment of S-01A vehicles in all scheduling exercises is to be commended. By implementing this assignment policy we insure against storage obsolescence and provide for orderly delivery of S-01A vehicles to satisfy using program requirements. SSH acknowledges that deviations to this procedure will, at times, be required due to peculiar program requirements. These deviations will be subject to concurrence of SSH.

3. Response to LMSC recommendations in referenced correspondence are as follows:

a. Par. #3(a) - SSH concurs in the assignment of AD-13 to vehicle 4901.

b. Par. #3(b) - Due to contemplated schedule acceleration for Program 162 which would increase the requirement for non-TAT vehicles no action should be taken at this time to retrofit AD-11, AD-12, AD-14 and AD-17 to TAT configuration. The storage delay in assigning vehicles AD-14 and AD-17 to Atlas boosted programs should be considered in view of retrofit costs involved. The costs and modification spans for retrofitting S-01A's to TAT is presently being prepared by the LMSC/SSD S-01A organization and will be available if future action is required in this area.

c. Par. #3(c) - SSH concurs in the requirement to determine the detrimental effect, if any, which might occur to vehicles in storage. It is felt that this effort will be a collation of information presently on hand such as seal life and past storage experience. This effort will be part of the sustaining engineering effort under the -191 contract.

4. It should be noted that there are no contemplated lot structure changes to S-01A vehicles presently on contract. This standardization will eliminate the program costs and schedule impact referenced in paragraph four of your letter. Any changes required due to S-01A design deficiencies will have to be corrected across the board to enable the S-01A vehicles to perform as specified.

SIGNED

661
HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

Copies to:

LMSC (Mr. Shoenhair)
AFPRO (Col. Voyles)

241

323/57

Fixed Ullage Rocket Carrier Problems

8 November 1962

Lockheed Missiles & Space Company
ATTN: Mr. J. L. Shoenhair
Department 68-01
Sunnyvale, California

1. In reviewing ECP LH-68-10, Modification to the Ullage Rocket Carrier Assembly, it became apparent that the current procedure of installing the fixed ullage rocket carrier in final assembly should be re-examined. At present, all vehicles are scheduled to be delivered with the fixed ullage rockets installed. However, it now appears that a large number of the vehicles will be flown without these units installed. To meet delivery schedules, this would require the manufacturing of a large number of units that would subsequently be scrapped, since the ullage rockets will be deleted from the improved vehicle version.

2. The following investigations are requested:

a. Determine whether the fixed ullage rocket carriers can be installed at the base with no trouble. Would it cause alignment effort, best done in Building 15? or Building 104? If they can be and there are no alignment problem, these can become optional equipment or items shipped separate for base installation.

b. Determine how many units are required of the old and new type carriers (this should be coordinated with ESD). It is proposed that the old items would be used up on mission where they are satisfactory. The new type only where required, until old items expended.

c. Determine whether it is economical to complete some of the units now being held incomplete at CALAG, considering returns from -21 Contract, -68 Contract, and spares.

d. Prepare an ECP to manufacture the new type of carriers required and recommend the new approach to be used, specification changes, contract changes, etc.

EDWARD F. BLUM
Lt. Colonel, USAF
System Program Deputy Director for Agena

242

REV 14-69

STX: H. F. Becker/2195

Request for Authority to Extend Definitization Date and to Obligate Additional Funds - Letter Contract AF 04(695)-68, Agena D

063

SOBK
SOAP
SOB
IN TURN

1. Authority is requested to extend the definitization date and increase the obligation limitation on Letter Contract AF 04(695)-68 with Lockheed Aircraft Corporation, Lockheed Missile and Space Company, Sunnyvale, California, for the Standard Agena D Program.

[REDACTED]

5. Authority is herewith requested to:

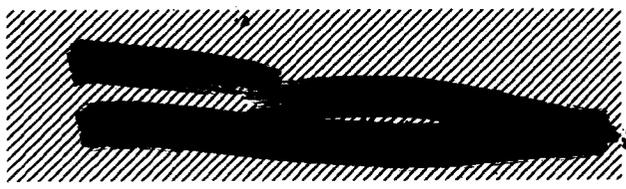
a. Extend the definitization date to 30 December 1962.

[REDACTED]

SIGNED

H. F. BECKER
Contracting Officer

100



Management Agreement

NOV 14 1962

9572

1. Reference is made to your 8 Nov 62 letter, Proposed Management Agreement between NASA and Air Force, and telephone conversation Col Brandeberry-LtCol Smith 9 Nov 1962. NASA's proposed management agreement, if understood correctly, asks for the following:

- a. Control of launch effort.
- b. Contractual control of launch capability and Agena D modifications.
- c. More voice in development of basic Agena D.
- d. Miscellaneous - Vehicle design review, evaluation of test, acceptance, post flight analysis and rework of reliability and quality assurance programs, plus program monitoring.

Summarizing, NASA wants complete control of its own projects and a voice in any other program that uses NASA funds.

2. SSH cannot object too strongly concerning NASA's desire to control their own program, since they have justified their own funds. However it should be pointed out that coordination of the programs will be extremely difficult (experience has shown it to be difficult within SSD alone) and that duplication and wasted contractor manpower is most certain to result. Since it is impractical to have two directors on a single program SSH can only entertain NASA direction on the basic Agena D program through the medium of the Configuration Control Board (CCB).

3. For your own information SSH has agreed to NASA representation on the CCB; they have been invited to design reviews, they sit on the acceptance team and they send representatives to meetings on the YLR 31 engine and the secondary propulsion system.

ROY O. SMITH, JR., Lt Col, USAF
Executive Officer
System Program Director for Agena

HENRY M. FLETCHER, JR.
Colonel, USAF
System Program Director for Agena

244

SECRET/NO. 2077/4115 213

Request Authorization for Letter Contract AF 04(695)-233

NOV 16 1962

SECRET
SECRET
SECRET
IN TURN

1. Pursuant to the authority vested in the Chief, Office of Procurement and Production, request authorization for the issuance of subject Letter Contract instrument based on the justification of essentiality contained herein:

a. Contractor's Name and Address:
Lockheed Aircraft Corporation
Missiles and Space Company
P.O. Box 504
Sunnyvale, California

b. Services and supplies necessary to provide and maintain capability for launching vehicles in accordance with Work Statement (as revised 9 October 1962) attached.

c. Required Performance - 30 December 1962 through December 1963.
Note - Contractor will be precluded from increasing his manpower beyond that carried under Contract AF 04(695)-52 for Agena Launch Services at F43 as of 23 December 1962.

d. Funding:

- (1) Total Estimated Cost: \$25,000,000
- (2) Requested Obligation Limit: \$12,500,000
- (3) Amount to be instantly obligated: \$1,500,000
- (4) Any anticipated funding problem? No.

e. Determinations and Findings:

(1) Determination and Findings, Authority to Negotiate contract pursuant to 10 U.S.C. 2304(11) attached hereto to cover Programs 461, 698BJ, 698BK, 206, 162 and NASA. No difficulties are anticipated.

SECRET/es

W. H. TRIPP

14 Nov 62



f. Anticipated Definitization Date: 1 March 1963.

g. Justification: The interests of National Defense demand that the Contractor be given a binding commitment so that work can be commenced immediately. Negotiation of a definitive contract in sufficient time to meet the procurement is not possible. No other type of contract is suitable. Specific reasons why urgency exists and why departure from normal contracting procedure is necessary follow, including details of when the operating activity was first made aware of the requirement and by what document or means:

656

(1) ES24 letter dated 27 July 1962 transferred procurement and administration responsibility for PMH Launch Capability to SSM. Two weeks later complete transfer of all files and documents connected with the requirement was completed.

(2) Work Statement negotiations began 3 August 1962 and continued intermittently to 9 October 1962 at which time the last revision was agreed upon. The Contractor's firm cost proposal which was originally scheduled for submission 3 October was, due to Work Statement changes, clipped twice, and finally received at AFSSD 1 November 1962.

(3) Fact finding was conducted 8 through 10 November 1962.

(4) Based upon the foregoing, delays in receiving audit information, and problems connected with scheduling negotiation price support, Contract negotiation cannot begin until 3 December 1962.

(5) Current contractual coverage for PMH Launch Capability expires 30 December 1962 and immediate contractual coverage subsequent to that date must be provided. Since, even under optimum circumstances, a definitized contract cannot be executed prior to the Contract AF O (695)-32 expiration date, a Letter Contract is the only suitable means of providing necessary contractual coverage.

3. Forwarded as attachments hereto are the contract files and/or other documents essential to an understanding of the proposed procurement action, based upon which the operating activity formed its decision on the essentiality of Letter Contract coverage.

SIGNED:
KERRY H. FARRINGTON, Jr.
Colonel, USAF
System Program Director for Agena

6 Atch
1. Work Statement



8. Sole Source Justification

245

NOV 26 1952



MEMORANDUM FOR THE DIRECTOR, AIR FORCE RESEARCH AND DEVELOPMENT COMMAND

USAF Research Contract No. (see report)
Contract No. AF33(616) 5702

1. This report is the preliminary report on the design of a retract test system for the 6555 and 6556 aircraft. The system is designed to provide a means of testing the retract system of the aircraft in a manner which is safe and efficient.

2. This position establishes the possibility for an independent mechanical or electro-mechanical retract removal system in addition to the present pneumatic type retract system currently used by AFRC. The present system requires the installation of a retract system and the possibility of a retract system.

3. The retract requirements for a retract system consistent with the present aircraft are listed in the report. It is noted that the retract system for the 6555 and 6556 aircraft is not acceptable. It is recommended that the retract system for the 6555 and 6556 aircraft be redesigned to meet the requirements of the report. This redesign will provide a retract system for all AFRC type aircraft.

4. The position that the retract system for the 6555 and 6556 aircraft is not acceptable is based on the fact that the retract system for the 6555 and 6556 aircraft is not acceptable. It is recommended that the retract system for the 6555 and 6556 aircraft be redesigned to meet the requirements of the report. This redesign will provide a retract system for all AFRC type aircraft.

5. The 6555 and 6556 aircraft retract test requirements can be met by the installation of a retract test system for the 6555 and 6556 aircraft. This system will provide a means of testing the retract system of the aircraft in a manner which is safe and efficient.

14-10000-000

NOV 26 1952

07
b. It is desired that the C-595 ATW consider the possibility of performing boom retract tests prior to the mating of the flight vehicles to insure that G2 and E-OLA systems remain sound. If this is not feasible, appropriate considerations will be initiated by SSM.

668
FOR THE COMMANDER

SIGNED

JOHN S. FLIPPEN, JR
Lt Colonel, USAF
Chief, E-OLA AGE Division

Copy to
SS2X (Maj Lindsey/Capt Haskins)
SSNA (LtCol Blum)
SS24 (Capt Tallman)
SS25 (Capt Haygood)

246
-H-

30/27007

30/27007

10013
OP BUREAU
RE BUREAU 399
P 001272
IN CSW

~~CONFIDENTIAL~~

TO DIRECTOR/AFSC ANDREWS AFB TX
INFO BUREAU/SSD INGLEWOOD CALIF

~~CONFIDENTIAL~~ FROM AFSSV-10 98964
AFSC FOR USAF, SSD FOR SSN. REFERENCE IS MADE TO AGENDA D ADVANCED
DEVELOPMENT PLAN PRESENTED BY AFSC AT HQ USAF 1A & 15 NOVEMBER. THIS
MESSAGE IN IV PARTS. PART I. REFERENCED PLAN AS PRESENTED IS NOT
APPROVED BASED ON VIEW HERE THAT A NUMBER OF IMPROVEMENTS PROPOSED,
ALTHOUGH DESIRABLE, ARE NOT SUPPORTED BY NEED TO CORRECT SPECIFIC
INEFFICIENCIES OR TO MEET NEW REQUIREMENTS. PART II. THE PROPOSAL FOR
IMPROVED PYROTECHNICS IS SUPPORTED BY REQUIREMENTS AND YOU ARE
AUTHORIZED TO PROCEED IMMEDIATELY WITH THIS EFFORT, EFFORT TO BE
SUPPORTED WITH AGENDA D FUNDS PREVIOUSLY PROVIDED AFSC. PART III.

PAGE TWO R1E4H0 399

THE NEED FOR WEIGHT REDUCTION IS WELL JUSTIFIED. THIS IMPROVEMENT
SHOULD BE REALIZED BY A SPECIFIC WEIGHT REDUCTION PROGRAM AND NOT A
BY-PRODUCT OF OTHER CHANGES. REQUEST A PROPOSED PLAN FOR SUCH A PROGRAM,
INCLUDING COST ESTIMATE, BE PRESENTED AT HQ USAF EARLIEST POSSIBLE
DATE. ADVISE DATE PRESENTATION CAN BE MADE. PART IV. CONCUR
IMPROVED HORIZON SENSOR REQUIRED. FINAL DECISION ON IMPROVED
SENSOR WILL BE DEFERRED UNTIL LATE DECEMBER OR EARLY JANUARY TO
REALIZE BENEFIT FROM TEST DATA THAT WILL BE AVAILABLE BY THAT DATE.

OP-4.
BT

30/27007 NOV R1E4H0

~~CONFIDENTIAL~~

DOWNGRADED AT 3 YEAR INTI
DECLASSIFIED AFTER 12 YE
DOD DIR 5200.10

247

DEC 12 1952

[REDACTED]

1001

[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]