



DR 14

(NASA-TM-84138) REPORT OF APOLLO 204 REVIEW BOARD, APPENDIX G, PART 1 (National Aeronautics and Space Administration) 60 p

N82-72458

00/12 Unclas 13934

# REPORT OF APOLLO 204 REVIEW BOARD

TO

THE ADMINISTRATOR

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

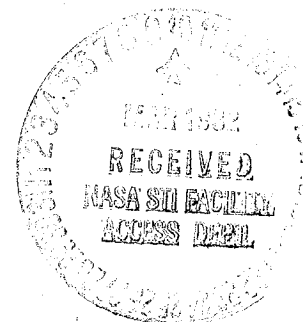
(NASA-TM-X-72183) REPORT OF APOLLO 204 REVIEW BOARD, APPENDIX G, PART 1 (NASA) 60 p

X75-70639

00/98 Unclas 05659

## APPENDIX G

### PART 1



### APOLLO SPACECRAFT

The spacecraft (S/C) consists of a launch escape system (LES) assembly, command module (C/M), service module (S/M), and the spacecraft/lunar module adapter (SLA). The LES assembly provides the means for rapidly separating the C/M from the S/M during pad or suborbital aborts. The C/M forms the spacecraft control center, contains necessary automatic and manual equipment to control and monitor the spacecraft systems, and contains the required equipment for safety and comfort of the crew. The S/M is a cylindrical structure located between the C/M and the SLA. It contains the propulsion systems for attitude and velocity change maneuvers. Most of the consumables used in the mission are stored in the S/M. The SLA is a truncated cone which connects the S/M to the launch vehicle. It also provides the space wherein the lunar module (L/M) is carried during lunar missions.

### TEST IN PROGRESS AT TIME OF ACCIDENT

Spacecraft 012 was undergoing a "Plugs Out Integrated Test" at the time of the accident on January 27, 1967. Operational Checkout Procedure, designated OCP FO-R-0021-1 applied to this test. Within this report this procedure is often referred to as OCP-0021.

### TESTS AND ANALYSES

Results of tests and analyses not complete at the time of publication of this report will be contained in Appendix G, Addenda and Corrigena.

### CONVERSION OF TIME

Throughout this report, time is stated in Greenwich Mean Time (GMT). To convert GMT to Eastern Standard Time (EST), subtract 17 hours. For example, 23:31 GMT converted is 6:31 p.m. EST.

E R R A T A     S H E E T

Report of  
Apollo 204  
Review Board  
Sheet 1 of 2  
Summary

1. Page 1-12, third line, Bureau of Mines.
2. Page 3-9, 9th paragraph, read "numerous" for "numorous."
3. Page 3-10, second paragraph, period at end of final sentence.
4. Page 3-14, January 31, 1967, paragraph 3, line 5, read "made of these potential."
5. Page 3-20, February 10, 1967, paragraph (3), line should read, "The Chairman emphasized to the Board Members who are Panel Monitors that copies of all Panel reports should be forwarded to the Integration Analysis Panel (#18) for coordination and integration."
6. Page 3-26, second paragraph, final line, read "Panel Coordination Committee."
7. Page 3-26, sixth paragraph 7., read "Following the General Session..."
8. Page 3-27, March 8, 1967, second paragraph, third sentence, read "for oral review..."
9. Page 3-28, March 10, 1967, third paragraph, read "...Fire Propagation Test #3..."
10. Page 3-28, March 10, 1967, fourth paragraph, read "...Barnett of Panel #13..."
11. Page 3-30, third paragraph, 5., read "... Item 0180, which was ..."
12. Page 4-1, 9th line, flush right.
13. Page 4-1, fourth paragraph, seventh line, first word, delete "made."
14. Page 4-2, sixth line, delete word "After."
15. Page 4-4, sixth line, read "by 23:20 GMT (6:20 p.m. EST) all final ..."
16. Page 4-5, 4. EVENTS FROM THE REPORT OF FIRE, etc., fifth paragraph, read "All transmissions of voice and data ..."

17. Page 5-1, second paragraph, third line, read "(2) removal or safetying of all pyrotechnics..."
18. Page 5-1, fourth paragraph, requires indentation.
19. Page 5-2, second line, flush right.
20. Page 5-4, 3. DATA ANALYSES, second paragraph, indent and space the line which reads, "A summary of these results follows."
21. Page 5-5, paragraph (a), third line, flush right.
22. Page 5-5, second to the last line, check left margin, right margin.
23. Page 5-6, first line, check left margin.
24. Page 5-9, paragraph d. MEDICAL ANALYSES, second line, read "environmental concentrations..."
25. Page 5-9, paragraph d. MEDICAL ANALYSES, third line, read "... and pulmonary irritants..."
26. Page 5-10, paragraph c. ELECTRIC ARCS, line 22, read "... the lithium hydroxide access..."
27. Page 5-11, paragraph d. EFFECT OF COOLANT, etc., fifth line, should read "... mixture is not highly..."
28. Page 5-11, paragraph d. EFFECT OF COOLANT, etc., sixth line, read "hazard" instead of "hazards."
29. Page 5-12, sixth line, should read "... in the use of such a system ..."
30. Page 5-13, V-1, read "... Bay Above Environmental ..."

E R R A T A S H E E T

1. Page A-7, Line 4, delete comma after "concerned"
2. Page A-7, Line 11, "this assembly" should be "disassembly"
3. Page A-7, Line 15, change "all right" to "alright"
4. Page A-7, Line 22, "prefocused" for "pre-focused" and "flourescent" should be "fluorescent"
5. Page A-7, Line 23, "spot" should be "spotlight"
6. Page A-7, Line 28, "find" should be "finding"
7. Page A-7, Line 35, insert "have" after "and"
8. Page A-7, Line 41, second "the" should be "this debris"
9. Page A-8, Line 4, delete "in a building" put period after "floor"
10. Page A-8, Line 12, right, bulkhead should be "bulkhead right"
11. Page A-8, Line 18, "Mr." should be "Dr."
12. Page A-8, Line 21, "24-foot" for "24 foot" also "office" should be "building"
13. Page A-8, Line 22, "24-foot" for "24 foot"
14. Page A-8, Line 23, "300 feet by 100 feet" for "300 ft. by 100 ft."
15. Page A-8, Line 34, delete comma after "parts"
16. Page A-8, Line 37, semicolon after "ourselves"
17. Page A-8, Line 43, where should be "and"
18. Page A-8, Line 44, "two" should be "2"
19. Page A-9, Line 6, "if" should be "is"
20. Page A-9, Line 10, should be "1-1/2 inches"
21. Page A-9, Line 11, "a" should be "the"
22. Page A-9, Line 22, "TPS" should be "Test Preparation Sheet (TPS)"
23. Page A-9, Line 33, "legs, supports" should be "leg supports"
24. Page A-9, Line 34, delete comma after supports
25. Page A-9, Line 40, "criticized" should be "critiqued"
26. Page A-10, Line 7, delete second "Mr. Geer"
27. Page A-10, Line 22, "board" should be "Board"

28. Page A-10, Line 27, "panels" should be "Panels"
29. Page A-10, Line 30, "board" should be "Board"
30. Page A-10, Line 31, "verbal" should be "oral"
31. Page A-10, Line 31, "member" should be "Member"
32. Page A-10, Line 32, "board" should be "Board"
33. Page A-10, Line 35, "board" should be "Board"
34. Page A-11, Line 12, "board" should be "Board"
35. Page A-11, Line 14, "panels" should be "Panels"
36. Page A-11, Line 22, delete comma after "Mr. Williams"
37. Page A-11, Line 24, "panels" should be "Panels"
38. Page A-12, Line 6, "board" should be "Board"
39. Page A-12, Line 10, "board" should be "Board"
40. Page A-12, Line 12, "panel chairman" should be "Panel Chairman"
41. Page A-12, Line 12, "board" should be "Board"
42. Page A-12, Line 13, insert "of" after "statement"
43. Page A-12, Line 14, "panel" should be "Panel"
44. Page A-12, Line 15, "board" should be "Board"
45. Page A-12, Line 24, "board members" should be "Board Members"
46. Page A-12, Line 24, "board members" should be "Board Members"
47. Page A-12, Line 26, "board member" should be "Board Member"
48. Page A-12, Line 27, "board members" should be "Board Members"
49. Page A-12, Line 27, "board members" should be "Board Members"
50. Page A-12, Line 29, "board" should be "Board"
51. Page A-12, Line 34, "panel chairmen" should be "Panel Chairmen"
52. Page A-12, Line 36, "board" should be "Panel"
53. Page A-12, Line 36, "panel chairmen" should be "Panel Chairmen"
54. Page A-13, Line 2, "panel members" should be "Panel Members"
55. Page A-13, Line 7, insert comma after "action" and after "privately"

56. Page A-13, Line 8, "board" should be "Board"
57. Page A-13, Line 11, "panel" should be "Panel"
58. Page A-13, Line 13, "#20" should be "#19"
59. Page A-13, Line 17, "board monitor" should be "Panel Monitor"
60. Page A-13, Line 18, "board" should be "Board"
61. Page A-13, Line 18, "panel" should be "Panel"
62. Page A-13, Line 18, "board" should be "Board"
63. Page A-13, Line 19, "members" should be "Members"
64. Page A-13, Second Session, 5th paragraph spoken by Mr. Long.
65. Page A-14, Line 3, "chairman" should be "Chairman"
66. Page A-14, Line 8, delete "we are in the process. We got a lot of material typed. It . . ." add "The material has been typed and . . ."
67. Page A-14, Line 11, delete this line completely.
68. Page A-14, Line 16, "panels" should be "Panels"
69. Page A-14, Line 24, "board" should be "Board"
70. Page A-14, Line 24, change the "to" after board to "if I"
71. Page A-14, Line 28, "board" should be "Board"
72. Page A-14, Line 34, "them" should be "to"
73. Page A-14, Line 35, "board" should be "Board"
74. Page A-15, Line 1, "command" should be "Command"
75. Page A-15, Line 1, insert "and" after Command
76. Page A-15, Line 1, "module should be "Module"
77. Page A-15, Line 4, "interaction" instead of "inter-action"
78. Page A-15, Line 7, "second Quarter of" instead of "2nd quarter of"
79. Page A-15, Line 14, "second Quarter of" instead of "2nd Quarter of"
80. Page A-15, Line 17, "command" should be "Command"
81. Page A-15, Line 17, insert "and" after Command
82. Page A-15, Line 17, modules should be "Modules"
- 83.

- 84.
86. Page A-15, Line 23, second "that" should be "the"
87. Page A-15, Line 26, insert comma after spacecraft
88. Page A-15, Line 26, insert comma after 101
89. Page A-15, Line 26, insert comma after Downey
90. Page A-15, Line 27, insert comma after March, delete "and" and make "we" capital
91. Page A-15, Line 28, insert "it" after "that"
92. Page A-15, Line 33, insert comma after "not" and comma after "course"
93. Page A-15, Line 34, delete "and that's to get" and add "to be"
94. Page A-15, Line 34, delete "out of" and add "from"
95. Page A-15, Line 35, insert comma after 502
96. Page A-15, Line 38, "ten" should be "10"
- 97.
98. Page A-15, Line 44, "command" should be "Command"
99. Page A-15, Line 44, insert "and" after Command
100. Page A-15, Line 44, "service module" should be "Service Module"
101. Page A-15, Line 45, "Houston" should be "MSC"
- 102.
103. Page A-15, Line 46, "Houston" should be "MSC"
104. Page A-15, Line 47, "chamber" instead of "Chamber" also delete "in the" and insert "for"
105. Page A-15, Line 49, insert comma after "Center" and after "LEM's", take out hyphen and also remove hyphen after "doing" and put period.
106. Page A-15, Line 49, delete "all" and add "for"
107. Page A-15, Line 49, "block" should be "Block"
- 108.
109. Page A-15, Line 52, "We" instead of "we"
110. Page A-16, Line 2, delete "and"
111. Page A-16, Line 2, delete "in" and add "at"
112. Page A-16, Line 3, delete "Houston" and add "MSC"



113. Page A-16, Line 4, delete 'compensate for' and add "concentrate on"
114. Page A-16, Line 7, delete Houston and add MSC
115. Page A-16, Line 10, delete "on" and add "in"
116. Page A-16, Line 12, "boards" should be "Boards"
117. Page A-16, Line 12, delete staff and add "things"
118. Page A-16, Line 13, "14" should be "014"
119. Page A-16, Line 14, "12" should be "012"
120. Page A-16, Line 14, delete comma after "here" and comma after "program"
121. Page A-16, Line 15, "block one" should be "Block I"
122. Page A-16, Line 17, delete comma after delivered and add a hyphen also make capital "T" in three a small "t"
123. Page A-16, Line 18, "we" should be "We"
124. Page A-16, Line 28, delete comma after "use" and put in "and"
125. Page A-16, Line 18, command module should be "Command Module"
126. Page A-16, Line 19, "command module" should be "Command Module"
127. Page A-16, Line 21, insert 'such' after "in" and make "involving" read "involved"
128. Page A-16, Line 22, "14" should be "014" and "12" should be "012"
129. Page A-16, Line 26, "12" should be "012"
130. Page A-16, Line 27, "14" should be "014" (twice)
131. Page A-16, Line 29, insert comma before "have" also "they" should be "then"
132. Page A-16, Line 30, "14" should be "014"
133. Page A-17, Line 10, "thermo-vacuum" instead of "thermo vacuum"
134. Page A-17, Line 11, "thermo-vacuum" instead of "thermo vacuum" also "14" should be "014" and "in Houston" should be at "MSC"
135. Page A-17, Line 16, "12" should be "012" also "Environmental Control System" should be upper case
136. Page A-17, Line 17, "environmental control system" should be "Environmental Control System"
137. Page A-17, Line 18, "environmental control system" should be "Environmental Control System"

138. Page A-17, Line 18, "Houston" should be "MSC"
139. Page A-17, Line 19, "8" should be "008"
140. Page A-17, Line 24, "8 spacecraft" should be "Spacecraft 008"
141. Page A-17, Line 26, "board" should be "Board"
142. Page A-17, Line 26, "This" should be "There"
143. Page A-17, Line 27, "environmental control system" should be "Environmental Control System"
144. Page A-17, Line 27, delete "which is at Houston" also delete commas
145. Page A-17, Line 28, "nonelectrical" instead of "non-electrical"
146. Page A-17, Line 29, "environmental control system" should be "Environmental Control System"
147. Page A-17, Line 31, "possible" should be "possibly"
148. Page A-17, Line 31, "non-electrical" should be "nonelectrical"
149. Page A-17, Line 32, "Kotawchick" should be "Kotanchik"
150. Page A-17, Line 33, "structures and mechanics division" should be "Structures and Mechanics Division"
151. Page A-17, Line 33, Houston should be "MSC"
152. Page A-17, Line 34, "board" should be "Board"
153. Page A-17, Line 35, insert "and" after "combustion"
154. Page A-17, Line 36, delete "G" and add "g"
155. Page A-17, Line 37, delete "G" and add "g"
156. Page A-17, Line 43, delete "G" and add "g"
157. Page A-17, Line 44, delete "G" and add "g"
158. Page A-17, Line 44, delete "G" and add "g"
159. Page A-17, Line 44, should be "16 psi"
160. Page A-17, Line 46, delete "G" and add "g"
161. Page A-18, Line 2, "board" should be "Board"
162. Page A-18, Line 3, "nonflight" instead of "non-flight"; delete "or be sure it is up to date with"; "board" should be "Board"
163. Page A-18, Line 6, delete comma after "temperature" insert "and" next line delete comma after "rates"

164. Page A-18, Line 7, delete comma after "people" insert "and"
165. Page A-18, Line 8, delete comma after "board" also "board" should be "Board"
166. Page A-18, Line 13, "in Houston" should be "at MSC"
167. Page A-18, Line 25, "mult" should be "multi"
168. Page A-18, Line 26, "command module and service module" should be "Command Module and Service Module"
169. Page A-18, Line 26, insert period after Module and capitalize "y" in you.
170. Page A-18, Line 28, "mockup" should be "scale model mockup"
171. Page A-18, Line 29, delete "is"
172. Page A-18, Line 29, insert period after "disassembled"
173. Page A-18, Line 29, capitalize "it's"
174. Page A-18, Line 30, insert comma after spacecraft.
175. Page A-18, Line 30, "But" should be "but"
176. Page A-18, Line 31, "inter" should be "inner"
177. Page A-18, Line 31, insert comma after "is" and comma after "on"
178. Page A-18, Line 32, "service module" should be "Service Module"
179. Page A-18, Line 32, insert comma after module
180. Page A-18, Line 34, "mock-up" instead of "mockup"
181. Page A-18, Line 35, "is" should be "will be"
182. Page A-18, Line 35, delete "sort of"
183. Page A-18, Line 35, last "we" should be "you".
184. Page A-18, Line 36, "using" should be "needing"
185. Page A-18, Line 36, "Houston" should be "MSC" also delete "just - a sort of - it's the big kid's"
186. Page A-18, Line 37, "interstructure" instead of "inter-structure"; delete "except it's valuable"; "earlier" should be "other"
187. Page A-18, Line 38, "in" should be "of"
188. Page A-18, Line 42, "Houston" should be "MSC" also "boiler plate" should be "boilerplate"

189. Page A-18, Line 48, delete comma after problem.
190. Page A-19, Line 1, "Houston" should be "MSC" also insert "use to" after "finally"
191. Page A-19, Line 3, "Houston" should be "MSC"; delete "now"; delete "let's say the"
192. Page A-19, Line 5, "there is a" should be "to the"
193. Page A-19, Line 8, "rereview" instead of "re-review" also "six and seven" should be "6 or 7"
194. Page A-19, Line 11, insert "and" before "emergency"
195. Page A-19, Line 12, "of when you go into" should be "is needed to explain"
196. Page A-19, Line 14, "PASC" should be "PSAC" also "doing" should be "including"
197. Page A-19, Line 15, delete "'s" on "anybody's"
198. Page A-19, Line 16, delete "that" also "we'll then" should be "then we'll"
199. Page A-19, Line 19, insert "and" after "Engineering" also "Houston" should be "MSC"
200. Page A-19, Line 22, "relook" instead of "re-look"
201. Page A-19, Line 23, delete comma after "that" ; "it's" should be "it"; insert "stems from" after "primarily"
202. Page A-19, Line 24, "denitrogenated" instead of "de-nitrongenated"
203. Page A-19, Line 25, delete comma and insert hyphen after "bends"
204. Page A-19, Line 26, delete comma and insert hyphen after "blood"
205. Page A-19, Line 27, delete comma and insert hyphen after "flight" also insert period after "purged" and capital "T" in "the"
206. Page A-19, Line 34, "psi" for "PSI"
207. Page A-19, Line 37, "this" should be "these"
208. Page A-19, Line 38, delete comma and insert period after "trades" made "w" in "we've" a capital
209. Page A-19, Line 42, "six or seven, eight or ten" should be "6 or 7, 8 or 10"
210. Page A-19, Line 47, "six or eight" should be "6 or 8"
211. Page A-19, Line 47, "rereview" instead of "re-review"

212. Page A-19, Line 51, "redesigning" instead of "re-designing" also "re-examining" should be "reexamining"
213. Page A-19, Line 50, "reexamining" instead of "re-examining"
214. Page A-19, Line 52, "re-designing" should be "redesigning"
215. Page A-19, Line 52, "that" should be "the"
216. Page A-19, Line 53, introduced should be "introduced"
217. Page A-20, Line 1, "of Houston" should be "at MSC"
218. Page A-20, Line 2, delete "in, but the communications actually all during that day, and you've heard some of the tapes and so on, and communications left a fair amount to be desired. We've set up a committee . . ."
219. Page A-20, Line 9, "cleanup" instead of "clean-up"
220. Page A-20, Line 10, "partially" should be "surely"
221. Page A-20, Line 11, insert comma after "were"
222. Page A-20, Line 13, delete comma after "had"
223. Page A-20, Line 28, "- over -" should be "Board" also insert period after "Board"
224. Page A-20, Line 28, capitalize "a" in "at"
225. Page A-20, Line 33, insert period after "here" and delete "I've asked"
226. Page A-20, Line 33, capitalize "t" in "the"
227. Page A-20, Line 33, Houston should be "MSC"
228. Page A-20, Line 40, delete from "Lastly" in Line 40 down to "Board as well." at bottom of page.
229. Page A-21, Line 8, insert comma after decisions
230. Page A-21, Line 9, "Houston" should be "MSC"
231. Page A-21, Line 10, "something" instead of "some thing"
232. Page A-21, Line 19, insert "were" after "you" also insert "and" after "files"
233. Page A-21, Line 20, insert comma after supplied and after files
234. Page A-21, Line 29, "Mr." should be "Dr."
235. Page A-21, Line 34, "that" should be "the"
236. Page A-21, Line 43, delete "we have done this"

237. Page A-22, Line 21, insert period after "LES" and delete "which we do not have"
238. Page A-22, Line 22, delete "the same time of"; insert "order" after "equipment"
239. Page A-22, Line 23, "thing" should be "structure floor"; "it" should be "the LES"
240. Page A-22, Line 27, delete comma after "plan" and insert "and"
241. Page A-22, Line 29, delete comma after "damage"
242. Page A-22, Line 30, insert period after "on" and delete "and we plan two hours for photography"
243. Page A-22, Line 33, "Launch Escape System" instead of "launch escape system"
244. Page A-22, Line 43, delete "I'll ask. I think you want to say something about the work"; make "D" in "did" a small letter; delete "some" and insert "a"
245. Page A-23, Line 10, "subsystem" for "sub-system"
246. Page A-23, Line 11, insert comma after "etc." and make "R" in "Relative" a small letter
247. Page A-23, Line 12, insert comma after GSE and delete comma after data
248. Page A-23, Line 28, under task 15 should be "by Panel 15"
249. Page A-23, Line 33, insert "after" before "further"
250. Page A-23, Line 38, delete "That meeting will be at 12:00"
251. Page A-24, Line 20, "twenty-four" should be "24"
252. Page A-24, Line 34, "two" should be "2"
253. Page A-24, Line 44, "takeoff" for "take off"
254. Page A-24, Line 47, "of" should be "the"
255. Page A-25, Line 12, "two" should be "2"
256. Page A-26, Line 7, insert "to perform gas analysis." after analyzer. Then capital "This gas analyzer ..."
257. Page A-26, Line 24, "setup" for "set-up"
258. Page A-26, Line 24, "setup" instead of "set-up"
259. Page A-26, Line 37, "pad" for "Pad"
260. Page A-27, Line 2, Question mark should be inserted after questions.

261. Page A-28, Line 34, "overview" for "over-view"
262. Page A-29, Line 7, "System" instead of "system"
263. Page A-30, Line 14, insert "can" after "American."
264. Page A-30, Line 26, "checklist" for "check list"
265. Page A-30, Line 35, "checklist" for "check list"
266. Page A-31, Line 7, "set-up" should be "setup"
267. Page A-31, Line 10, "close out" should be "closeout"
268. Page A-31, Line 23, "two or three" should be "2 or 3"
269. Page A-35, Line 4, launch escape system should be "Launch Escape System"
270. Page A-35, Line 5, "three or four" should be "3 or 4"
271. Page A-35, Line 10, some-time should be "sometime"
272. Page A-35, Line 14, "two" should be "2"
273. Page A-35, Line 16, "any way" should be "anyway"
274. Page A-35, Line 20, "non-attached, non-connected" should be "nonattached" "nonconnected"
275. Page A-36, Line 5, "non-flight" should be "nonflight"
276. Page A-36, Line 17, "non-flight" should be "nonflight"
277. Page A-36, Line 22, "item" should be "Item"
278. Page A-39, Line 23, delete periods between F.B.I.
279. Page A-40, Line 12, "close-out" should be "closeout"
280. Page A-40, Line 13, "close-out" should be "closeout"
281. Page A-41, Line 1, change one and one-half to "1-1/2"
282. Page A-41, Line 17, delete apostrophe after "TPS'"
283. Page A-42, Line 5, "follow up" should be "followup"
284. Page A-43, Line 35, "eight hour" should be "8-hour"
285. Page A-43, Line 37, "all right" should be "alright"
286. Page A043, Line 43, "four hours" should be "4-hours"
287. Page A-43, Line 45, "eight hours" should be "8-hours"
288. Page A-46, Line 8, "two" should be "2"

289. Page A-46, Line 1, first sentence should be changed to read "The meeting was called to order by Col. Strang, Acting Chairman, at 11:50 a.m."
290. Page A-46, Line 4, "2000 hours" should be "8:00 p.m."
291. Page A-46, Line 5, "1800 hours" should be "6:00 p.m." Capitalize "panel"
292. Page A-46, Line 6, "1700 hours" should be "5:00 p.m."
293. Page A-46, Line 7, Capitalize "panel"
294. Page A-46, Line 14, Capitalize "panel"
295. Page A-46, Line 26, first sentence should be corrected to read "Mr. Carl Jackson of AiResearch, ..."
296. Page A-46, Line 28, Delete "spacecraft" and insert "C/M" in its place
297. Page A-46, Line 31, insert "Analysis" after "integration"
298. Page A-46, Line 35, Delete "If you" and insert "I" also delete "#"
299. Page A-46, Line 36, Capitalize "medical data acquisition"
300. Page A-46, Line 36, "medical data acquisition system" should be "Medical Data Acquisition System"
301. Page A-46, Line 37, insert comma after system. Delete "removal; we would like to remove it." and insert "be removed from the C/M."
302. Page A-47, Line 3, "pre-removal" and "pre-opening" should be "preremoval" and "preopening"
303. Page A-47, Line 4, Substitute "C/M" for "spacecraft"
304. Page A-47, Line 5, Insert period after equipment. Start new sentence with "There"
305. Page A-47, Line 6, Insert "we" after "and"
306. Page A-47, Line 7, Insert comma after "compartment"
307. Page A047, Line 8, Delete comma after "them"
308. Page A047, Line 9, Capitalize "items"
309. Page A047, Line 11, Delete "available and in the presence of the work: and insert "present during the work" in its place.
310. Page A-47, Line 22, Substitute "C/M" for "spacecraft"
311. Page A-47, Line 24, Substitute "C/M 014" for Spacecraft 14"
312. Page A-47, Line 25, Substitute "C/M 012" for Spacecraft 12. Change "14" to "014"



313. Page A-47, Line 35, Substitute "C/M" for "spacecraft"
314. Page A-47, Line 37, Substitute "C/M" for "spacecraft"
315. Page A-48, Line 1, Substitute "C/M" for "spacecraft"
316. Page A048, Line 4, "quarter to a half" should be "1/4 to 1/2"
317. Page A-48, Line 36, Substitute "C/M 008" for "spacecraft" and "MSC" for "Houston"
318. Page A-48, Line 40, "studies" should be "studied"
319. Page A-48, Line 48, Substitute "MSC" for "Houston"
320. Page A-48, Line 51, Substitute "MSC" for "Houston"
321. Page A-49, Line 1, Substitute "MSC" for "Houston"
322. Page A-49, Line 12, Period should be replaced with question mark
323. Page A-49, Line 21, Capitalize "panel chairman"
324. Page A-49, Line 23, Capitalize "chairman" and "executive session"
325. Page A-49, Line 24, "ten thirty a.m." should be "10:30 a.m."
326. Page A-49, Line 25, Change "6 February 1967" to "February 6, 1967"
327. Page A-49, Line 37 (last line) Change sentence to read "The meeting was adjourned at 12:03 p.m."
328. Page A-50, Line 20, close-out should be "closeout"
329. Page A-51, Line 14, "H2o" should be "H<sub>2</sub>O"
330. Page A051, Line 15, "Xray" should be "X-ray"
331. Page A-51, Line 16, "Xray" should be "X-ray"
332. Page A-52, Line 26, "contractors" should be followed by "and subcontractors"
333. Page A-52, Line 29, Capitalize "panel" and delete "#"
334. Page A-52, Line 33, Delete "#"
335. Page A-53, Line 30, Insert comma after "insulation"
336. Page A-53, Line 31, Insert "and" after "rubber" and insert comma after "system"
337. Page A-53, Line 48, "bio-medics" should be "biomedics"
338. Page A-54, Line 26, leave space after "you'll"
339. Page A-54, Line 33, Insert comma after "couch"

340. Page A-54, Line 34, Insert comma after "moved"
341. Page A-54, Line 44, Insert comma after "way"
342. Page A-55, Line 3, "not" should be "now"
343. Page A-53, Line 5, delete comma after "is"
344. Page A-55, Line 13, "area" should be "areas"
345. Page A-55, Line 17, delete ", so" and delete "and"
346. Page A-55, Line 18, Insert period after "couch", begin new sentence with "A"
347. Page A-55, Line 19, delete "so"
348. Page A-55, Line 21, insert comma after "First"
349. Page A-55, Line 30, Substitute "clear" for "to appear"; insert hyphen after "propa"
350. Page A-55, Line 45, Insert "at" after "again"
351. Page A-56, Line 2, insert comma after "suspect"
352. Page A-56, Line 3, insert "a" before "clockwise"
353. Page A-56, Line 6, substitute "one" for "the"
354. Page A-56, Line 12, insert period after "o'clock", start new sentence with "These", substitute "are" for "being"
355. Page A-56, Line 13, Insert period after "say", start new sentence with "We"
356. Page A-56, Line 27, Substitute "break" for "hatch"
357. Page A-56, Line 34, Insert period after "important", start new sentence with "The"
358. Page A-56, Line 42, delete one comma after "fires"
359. Page A-57, Line 4, "thru" should be "through"
360. Page A-57, Line 43, substitute "also" for "another"
361. Page A058, Line 2, insert "and we are" before "just"
362. Page A-58, Line 10, delete "glycol"
363. Page A-58, Line 15, insert "we have" before "aluminum"
364. Page A-58, Line 16, delete "itself"
365. Page A-60, Line 13, capitalize spacecraft
366. Page A-60, Line 15, insert comma after "indicator"

367. Page A-60, Line 19, delete concerning
368. Page A-60, Line 22, insert period after "different", begin new sentence with "We", add word "now" after "We"
369. Page A-60, Line 23, delete "on now"
370. Page A-60, Line 28, insert "unit" after "this"
371. Page A-60, Line 29, Capitalize "spacecraft"
372. Page A-60, Line 30, Capitalize "panel" and insert comma after reference
373. Page A-60, Line 38, Launch vehicle-spacecraft should be changed as
374. Page A-60, Line 40, Capitalize "launch vehicle" and "spacecraft"
375. Page A-61, Line 5, Capitalize "spacecraft"
376. Page A-61, Line 8, Capitalize "service module"
377. Page A-61, Line 16, insert "it" after transport
378. Page A-61, Line 20, Capitalize "command module"
379. Page A-61, Line 24, "rotational" should be rotation. Delete word "hand"
380. Page A-61, Line 25, Delete word "hand"
381. Page A-62, Line 4, Insert comma after "appropriate"
382. Page A-62, Line 13, Put period in place of colon
383. Page A-62, Line 15, insert "he is" after 'which'
384. Page A-62, Line 38, Insert GMT in place of "zebra"
385. Page A-63, Line 5, insert comma after word "call"
386. Page A-63, Line 7, Delete "Zebra (Zebra-Zulu Mean Greenwich Mean Time)" and insert "GMT" in its place.
387. Page A-63, Line 8, Delete "Zebra" and insert "GMT"
388. Page A-63, Line 12, Delete "Zebra" and insert "GMT"
389. Page A-63, Line 21, "fro" should be "for"
390. Page A-63, Line 26, Capitalize "spacecraft"
391. Page A-63, Line 27, Delete "#"
392. Page A-63, Line 39, "people" should be the last word of the sentence.
393. Page A-63, Line 40, Substitute "last" for "other"

394. Page A-64-1, Line 21, Substitute "committee" for "panel"
395. Page A-64-2, Line 7, Capitalize "spacecraft"
396. Page A-64-2, Line 14, Delete "hand" after rotation and translation
397. Page A-64-2, Line 21, Capitalize "command module" and "service module"
398. Page A-64-2, Line 22, Insert period after "guillotine" delete "and" and start new sentence with "What"
399. Page A-64-2, Line 26, Insert "in" after none
400. Page A-64-2, Line 27, Insert dash after "time"
401. Page A-64-2, Line 29, Capitalize "spacecraft"
402. Page A-64-2, Line 31, Delete "ring" and insert "get" in its place. Capitalize "spacecraft"
403. Page A-64-2, Line 32, Capitalize "spacecraft"
404. Page A-64-2, Line 33, Capitalize "spacecraft"
405. Page A-64-3, Line 1, Capitalize "service module"
406. Page A-64-3, Line 5, Delete "ringing" and insert "testing wiring" in its place. Capitalize "spacecraft"
407. Page A-64-3, Line 10, Capitalize "command-module/service-module"
408. Page A-64-3, Line 14, Capitalize "spacecraft"
409. Page A-64-3, Line 19, Delete "ring out" and insert "test" in its place
410. Page A-64-3, Line 32, Capitalize "spacecraft"
411. Page A-64-3, Line 35, Capitalize "command module"
412. Page A-64-3, Line 36, Capitalize "command module"
413. Page A-64-4, Line 19, Insert "information" after damage
414. Page A-64-4, Line 36, Delete comma and hyphen after "2" and insert semicolon in its place.
415. Page A-64-5, Line 11, Insert period after "time" and start new sentence with "They"
416. Page A-64-5, Line 26, Delete comma and hyphen after it and put semicolon in its place
417. Page A-65, Line 28, delete "on the" and insert "under"
418. Page A-66, Line 12, delete "hand"
419. Page A-66, Line 13, Substitute "was" for "were"

420. Page A-66, Line 17, insert "the" after "of" and delete "hand"
421. Page A-66, Line 21, insert "is" after "0085" and insert hyphens after "pin", "to", and "vehicle"
422. Page A-66, Line 41, Delete "which" and insert period after "Items"
423. Page A-66, Line 42, Delete "and" and put "It" in its place.
424. Page A-66, Line 45, Leave space after "believe"
425. Page A-67, Line 9, "233054" should be "23:30:54 GMT"
426. Page A-67, Line 12, Insert "than" for "that"
427. Page A-68, Line 2, Delete "a photographic"
428. Page A-68, Line 3, Delete "study"
429. Page A-68, Line 9, Insert "On" before "The" and lower case "The"
430. Page A-68, Line 10, "the understanding" is duplicated. Delete one of these.
431. Page A-68, Line 13, Capitalize "yes", insert "we" after "and"
432. Page A-68, Line 17, insert "and" before "a" at the end of the line.
433. Page A-68, Line 18, Capitalize "panels"
434. Page A-68, Line 27, Insert "with" before "Panel", delete "#"
435. Page A-68, Line 28, Delete "#" twice, insert "with" before "Panel"
436. Page A-68, Line 29, Delete "#"
437. Page A-68, Line 30, Substitute "is" for "we". Delete "him", Delete "#", insert period after "9", delete "and"
438. Page A-68, Line 31, insert "with" before "Panel". Delete "#" twice
439. Page A-68, Line 32, Delete "#"
440. Page A-68, Line 38, Delete "#"
441. Page A-69, Line 1, Delete "#"
442. Page A-79, Line 4, delete "the" before "Procedure", delete "#", delete comma after distributed
443. Page A-69, Line 6, delete "the" before three. Insert colon after "categories"
444. Page A-69, Line 7, delete "this" before material. Insert "that" after "material"
445. Page A-69, Line 11, Delete "#"
446. Page A-69, Line 12, Capitalize "spacecraft"

447. Page A-69, Line 36, "hasnt't" should be "hasn't"
448. Page A-69, Line 40, Insert "used" before "during", insert "the" before "reported"
449. Page A-69, Line 12, Capitalize "spacecraft", insert comma after "GSE"
450. Page A-69, Line 42, insert "the" before "total"
451. Page A-70, Line 2, Insert comma after "have"
452. Line 3, Substitute "of" for "a", delete word "an"
453. Page A-70, Line 5, insert "to review" after "afternoon"
454. Page A-71, Line 1, capitalize "panel"
455. Page A-71, Line 2, insert comma after "reports"
456. Page A-71, Line 4, insert comma after "findings"
457. Page A-71, Line 5, Insert "nd" after "22"
458. Page A-71, Line 10, delete parenthesis around 22 and insert "nd" after "22"
459. Page A-71, Line 24, Capitalize "spacecraft"
460. Page A-71, Line 30, Substitute "tests" for "ring-out", capitalize "command", delete one "and" after command, change "service modules umbilicals" to read "Service Module umbilicals"
461. Page A-71, Line 32, Capitalize "spacecraft"
462. Page A-71, Line 37, Insert "at" after "possibly"
463. Page A-72, Line 8, delete "item 113 of", delete "to inspect" after "today" and insert "regarding inspection of" after "today"; Capitalize "spacecraft", Capitalize "service"
464. Page A-72, Line 9, Capitalize "module"
465. Page A-72, Line 10, Delete "WILLIAMS", insert "Item 113:" at beginning of sentence. Capitalize "Service Module"
466. Page A-72, Line 12, Insert colon after "Item 114", insert "to" before inspect, delete comma and insert "and" before "will"
467. Page A-72, Line 14, insert colon after "reason", capitalize "spacecraft"
468. Page A-72, Line 17, Insert colon after "Item 116", insert "the" before "spacecraft" and capitalize "spacecraft"
469. Page A-72, Line 18, Insert colon after "reason" and delete "is"
470. Page A-72, Line 21, insert colon after "Item 117"
471. Page A-72, Line 22, insert colon after "reason" and delete "for", insert "that" after "cannister"

472. Page A-72, Line 24, Delete comma and "of" after "out", insert "concerning a" after "out"
473. Page A-72, Line 26, "than" should be "that"
474. Page A-72, Line 27, Capitalize "board"
475. Page A-73, Line 5, Delete "just", insert "I"
476. Page A-73, Line 6, Capitalize "board"
477. Page A-73, Line 7, Capitalize "panels"
478. Page A-73, Line 8, insert comma after "requirements"
479. Page A-73, Line 9, insert comma after "days"
480. Page A-73, Line 10, Insert "the" after "of"
481. Page A-74, Line 5, "PM" should be lower case.
482. Page A-74, Line 10, delete "00"
483. Page A-74, Line 11, delete first word of line, "items"
484. Page A-74, Line 17, Capitalize "spacecraft", insert period after "slowly", begin new sentence with "We"
485. Page A-74, Line 18, delete "to"
486. Page A-74, Line 22, "check" should be "checks", "and" should be "on"
487. Page A-74, Line 23, Capitalize "spacecraft" and "service module"
488. Page A-74, Line 24, Begin line with "Regarding", lower case "The", Insert semicolon after system, substitute "it" for "that"
489. Page A-74, Line 25, Capitalize "spacecraft"
490. Page A-74, Line 27, Delete "due to the" after "be" and insert "because"
491. Page A-74, Line 28, Insert semicolon after "servoir" and a comma after "but"
492. Page A-74, Line 29, Delete "there" before "on" and "the" after "on"
493. Page A-74, Line 34, Capitalize "board"
494. Page A-74, Line 37, Capitalize "board"
495. Page A-75, Line 12, Insert semicolon after "catagories"
496. Page A-75, Line 20, Delete last "o" in "alsoo"
497. Page A-75, Line 21, Capitalize "board"
498. Page A-76, Line 8, Insert comma after "items" and then insert "items 118 to 138". "were" should be "was"

499. Page A-76, Line 9, A period should come after "Williams", delete "Items 118 to 138"
500. Page A-76, Line 10, Insert "and" before "that"
501. Page A-76, Line 22, "thru" should be "through"
502. Page A-76, Line 24, Insert semicolon instead of comma after "time"
503. Page A-76, Line 25, Insert comma before "I" and after "think"
504. Page A-76, Line 29, insert "action" before "items", insert period after "previously", delete "to action items, and" Begin new sentence with "The"
505. Page A-76, Line 39, Capitalize "spacecraft"
506. Page A-76, Line 40, Capitalize "spacecraft"
507. Page A-77, Line 7, Delete the first word of the line, "in"
508. Page A-77, Line 12, Insert period after "system" and begin new sentence with "it"
509. Page A-77, Line 14, "ruptures" should be "rupture". Insert "of the" after "rupture"
510. Page A-78, Line 11, read "Spacecraft" for "spacecraft"
511. Page A-78, Line 14, insert semicolon after "panel 24"
512. Page A-78, Line 18, read "is to demate" for "is demate"
513. Page A-78, Line 18, read "Launch Vehicle" for "launch vehicle"
514. Page A-78, Line 119, insert colon after "Required"
515. Page A-78, Line 20, read "MSO Building" for "MSOB Building"
516. Page A-78, Line 21, read "is to analyze" for "is analyze"
517. Page A-78, Line 22, read "Spacecraft" for "spacecraft"
518. Page A-78, Line 39, insert comma after "committee"
519. Page A-79, Line 1, delete comma after "be" and capitalize "g" in "government"
520. Page A-79, Line 5, delete hyphen after "paper"
521. Page A-79, Line 9, read "taken" for "yaken"
522. Page A-79, line 10, insert comma after "fails"
523. Page A-79, Line 11, read "disassembly. A report . . ." for "disassembly, a report . . ."
524. Page A-79, Line 15, read "be" for "by"



525. Page A-79, Line 17, substitute a semicolon for the comma after "week"
526. Page A-79, Line 28, read "Spacecraft" for "spacecraft:
527. Page A-79, Line 28, insert comma after "TVI"
528. Page A-79, Line 29, insert comma after "spacecraft"
529. Page A-79, Line 30, substitute "MSC" for "Houston"
530. Page A-79, Line 36, read "oxygen" for "O2"
531. Page A-79, Line 38, read "data" for "date"
532. Page A-79, Lines 40 and 41, read "Spacecraft 008 at MSC" for "spacecraft 008 in Houston"
533. Page A-79, Line 42, read "Spacecraft" for "spacecraft"
534. Page A-79, Line 43, first word, read "is" for "in"
535. Page A-79, Line 47, read "activities of people external to the Spacecraft" for "activities people external to the spacecraft."
536. Page A-80, Line 5, delete "capsule or Service Module."
537. Page A-80, Lines 6 and 7, delete "we were following up this morning,"
538. Page A-80, Line 7, read "N<sub>2</sub>O<sub>4</sub>" for "N2O4"
539. Page A-80, Line 8, read "Service Module; we..." for "Service Module, and we..."
540. Page A-80, Lines 15 and 16, read "Spacecraft" for "spacecraft"
541. Page A-80, lines 24 and 25, omit dash after "20" and insert a comma after "20" and after "data"
542. Page A-80, Line 31, after "TPS's" insert comma and then read "and 47 are in work. Most of those Board actions requiring TPS's will be completed after ..."
543. Page A-80, Line 37, read "oxygen" for "osyben"
544. Page A-80, Line 39, substitute semicolon for comma after "Board" and omit "that"
545. Page A-80, Line 40, insert comma after "Center"
546. Page A-80, Line 40 and 41, read "responsibility" for "responsibilith"
547. Page A-81, Line 1, read "O<sub>2</sub>" for "O2"
548. Page A-81, Line 2, read "preparation" for "preparation"

549. Page A-81, Line 4, read "Chairmen" for "Chairman"
550. Page A-82, Line 7, read "Panels" instead of "panels"
551. Page A-82, Line 8, read "Panel" instead of "panel"
552. Page A-82, Lines 19, 20, and 25 read "C/M" instead of "CM"
553. Page A-82, Line 20, delete comma and insert "the" after "is"
554. Page A-82, Line 20, read "to" for "at"
555. Page A-82, Line 21, read "not" for "noting"
556. Page A-82, Line 28, read "TPS's" for "TPS"
557. Page A-82, last line, delete "CHAIRMAN:"
558. Page A-83, Line 5, read "a.m." for "A.M."
559. Page A-83, Lines 5 and 8, read "p.m." for "P.M."
560. Page A-83, Line 5, after "Saturday" insert comma and read "February 18, 1967; another meeting, a general meeting, at 10:30 a.m. Saturday; another Executive . . ."
561. Page A-83, Line 14, read "Spacecraft" for "spacecraft"
562. Page A-83, Line 17, insert comma after "cabling" and after "Board"
563. Page A-83, Line 19, read "Service Module for "service module"
564. Page A-83, Lines 25, 26, and 29, read "Spacecraft" for "spacecraft"
565. Page A-84, Line 8, read "Item 151" for "151"
566. Page A-84, Line 9, read "test" for "ring" (omit quotation marks) and read "and" for "out with"
567. Page A-84, Line 10, substitute period for comma after "movement" and read "It's in the way . . ."
568. Page A-84, last line, read "11:03 a.m." for "11:03."
569. Page A-85, Line 4, read "C/M" for "c/m"
570. Page A-85, Line 11, read "needing" for "need"
571. Page A-85, Line 23, delete "CHAIRMAN:"
572. Page A-85, Line 33, read "Spacecraft" for "spacecraft"
573. Page A-85, Line 36, insert comma after "you"
574. Page A-85, Line 41, read "are" for "is"
575. Page A-86, Line 1, read "underway" for "under way"
576. Page A-86, Line 4, insert comma after "Dr. Faget"

E R R A T A   S H E E T

Appendix D Panel 10  
204 Review Board Report  
Sheet No. 1 of 1

1. Page D-10-3, Line 39, Insert a hyphen between "direct" and "wire"
2. Page D-10-4, Line 20, read "induced" for "indiced"
3. Page D-10-4, Line 30, Delete period and add "at 23:31:18 GMT, 23:31:20 GMT, and 23:31:22 GMT."
4. Page D-10-6, Line 27, Read "soldered joints at unions"
5. Page D-10-8, Line 13, Read "soldered joints at unions"
6. Page D-10-8, Line 16, Read "soldered aluminum joints at unions"

1. Page D-11-5, Line 12, read "phonocardiogram" instead of all caps.
2. Page D-11-6, Line 18, read "gross" instead of "gorss"
3. Page D-11-8, 16. Finding, should read "Suit damage decreased progressively from the Command Pilot's side of the spacecraft to the Pilot's side."
4. Page D-11-27, Paragraph 3, second line, should read "Burns involving this percentage . . ."
5. Page D-11-37, Line 31, delete the line.
6. Page D-11-37, Line 32, should read ". . . for metallographic analysis."
7. Page D-11-43, Line 9, delete "AS" and insert "Apollo"

E R R A T A S H E E T

Appendix D Panel 12  
204 Review Board Report  
Sheet No. 1 of 5

1. Page D-12-3, first line, delete "WITNESS STATEMENTS"
2. Page D-12-3, sixth line, read "whom" for "who"
3. Page D-12-3, eighth line, delete "formal"
4. Page D-12-3, eighth line, read "task" for "tasks"
5. Page D-12-3, Paragraph B.1, nineteenth line, read "McNamara" for "McNanara"
6. Page D-12-3, Paragraph C.1.b, thirty-sixth line, delete "Review"
7. Page D-12-3, Paragraph C.1.c., thirty-eighth line, read "5. OBJECTIVE B" for "5. Objective (b)"
8. Page D-12-3, Paragraph C.1.d, thirty-ninth line, delete "Review"
9. Page D-12-4, Line 1, delete quotation marks.
10. Page D-12-4, Line 7, read "pedestal" for Pedestal"
11. Page D-12-4, Line 10, read "accident" for "incident"
12. Page D-12-4, Line 13, read "exiting" for "existing"
13. Page D-12-4, Line 13, read "accident" for "incident"
14. Page D-12-4, Paragraph C.3., Line 17, read "Statements" for "Statement"
15. Page D-12-4, Paragraph C.3., Line 18, delete quotation marks.
16. Page D-12-4, Paragraph C.3., Line 20, read "accident" for "incident"
17. Page D-12-4, Paragraph C.3., Line 20, read "Airways" for "Airwasy"
18. Page D-12-4, Paragraph C.3., Line 25, delete quotation marks.
19. Page D-12-4, Paragraph C.4, Line 26, read "accident" for "incident"
20. Page D-12-4, Paragraph C.4., Line 27, read "from" for "for"
21. Page D-12-4, Paragraph C.4., Line 27, read "persons" for "people"
22. Page D-12-4, Paragraph C.4., read "forty" for "forth"
23. Page D-12-4, Paragraph C.4., Line 29, delete "a total of"
24. Page D-12-4, Paragraph C.4., Line 29, read "were" for "was"

25. Page D-12-4, Paragraph C.5., Line 31, delete "Review"
26. Page D-12-4, Paragraph C.5., Line 36, delete "time"
27. Page D-12-4, Paragraph C.5., Line 38, delete "The"
28. Page D-12-4, Paragraph C.5., Line 40, read "from" for "fron"
29. Page D-12-4, Paragraph C.5., Line 42, insert period at end of line.
30. Page D-12-5, Paragraph C.5., Line 9, delete "time"
31. Page D-12-5, Paragraph C.5., Line 10, read "6:33:00" for "6:33"
32. Page D-12-5, Paragraph C.5., Line 17, delete "time"
33. Page D-12-5, Paragraph C.5., Line 17, read "6:33:00" for "6:33"
34. Page D-12-5, Paragraph C.5., Line 18, read "6:37:00" for "6:37"
35. Page D-12-5, Paragraph C.5., Line 22, read "Outer" for "outer"
36. Page D-12-5, Paragraph C.5., Line 29, delete "time"
37. Page D-12-5, Paragraph C.5., Line 29, read "6:37:00" for "6:37"
38. Page D-12-5, Paragraph C.5., Line 30, read "6:45:00" for "6:45"
39. Page D-12-5, Paragraph C.5., Line 35, delete "time"
40. Page D-12-5, Paragraph C.5., Line 35, read "6:45:00" for "6:45"
41. Page D-12-5, Paragraph C.6., Line 45, read "Spacecraft" for "spacecraft"
42. Page D-12-5, Paragraph C.6., Line 45, read "two-and-one-half"
43. Page D-12-6, Paragraph C.6., Line 1, read "Spacecraft" for "spacecraft"
44. Page D-12-6, Paragraph C.6., Line 6, read "accident" for "incident"
45. Page D-12-6, Paragraph C.6., Line 6, insert comma after "screens"
46. Page D-12-6, Paragraph C.6., Line 7, read "momentary" for "monetary"
47. Page D-12-7, Paragraph C.7.a., Line 22, read "panel" for "paned"
48. Page D-12-7, Paragraph C.7.a., Line 35, read "Bruce W. Davis" for "Bruce, W. David"

49. Page D-12-7, Paragraph C.7.a., Line 37, read "Umbilical" for "umbilical"
50. Page D-12-8, Paragraph C.7.a., Line 12, read "Heard" for "Hears"
51. Page D-12-8, Paragraph C.7.a., Lines 16, 19, 23, and 41, read "QC" FOR "Q. C."
52. Page D-12-8, Paragraph C.7.a., Line 18, read "Heard" for "Hears"
53. Page D-12-8, Paragraph C.7.a., Line 18 and 19, read "Module" for "Mod-"
54. Page D-12-8, Paragraph C.7.a., Line 36, read "diminish" for "dimish"
55. Page D-12-8, Paragraph C.7.a., Line 41, insert period after "Fire in Cockpit"
56. Page D-12-9, Paragraph C.7.a., Line 1, read "Heard" for "Hears"
57. Page D-12-9, Paragraph C.7.a., Line 2, insert "Umbilical Tower," after "Technician;"
58. Page D-12-9, Paragraph C.7.a., Line 43, insert period after "A-8"
59. Page D-12-10, Paragraph C.7.a., Line 40, read "base of hatch" for "base hatch"
60. Page D-12-11, Paragraph C.8., Line 22, delete "and releaser for the statements"
61. Page D-12-11, Paragraph C.8., Line 30, read "testimony directly relevant" for "testimony relevant"
62. Page D-12-11, Paragraph C.8., Line 33, read "provide directly relevant" for "provide relevant"
63. Page D-12-11, Paragraph C.9., Line 42 and 43, read "statements, tape recordings, and releases of all witnesses" for "statements and/or tape recordings of all witnesses"
64. Page D-12-11, delete last sentence on page: "The requirements came....."
65. Page D-12-12, Paragraph C.11., Line 10, delete "Review Board"
66. Page D-12-12, Paragraph D., Line 15, read "persons" for "people"
67. Page D-12-23, delete information shown and indicate "this page left blank intentionally."

ERRATA SHEET

Appendix D Panel 6-7  
204 Review Board Report  
Sheet No. 1

1. Page D-6-3, second line, change "accomplished" to "accomplishment"
2. Page D-6-3, fifth line in paragraph 1.a., change "operational" to "operations"
3. Page D-6-3, seventh line in paragraph 2.a., add "records" after "quality"
4. Page D-6-4, first line in paragraph 4.b., change "Panel 7" to "Panel 6"
5. Page D-6-4, second line in paragraph 4.b., add "by" after "requested"
6. Page D-6-20, second line in paragraph e., change "(Reference 61-8)" to "(Reference 6-18)"
7. Page D-6-23, second line from top of page, change "publicwtion" to "publication"
8. Page D-6-28, seventeenth line under paragraph e., change "other" to "of the" after "objective"
9. Page D-7-4, first line in paragraph h., change "inlude" to "include"
10. Page D-7-5, second line in third paragraph under parabrph b, add "a" after "not"
11. Page D-7-7, third line in paragraph 6., change "7-18" to "7-8"
12. Page D-7-9, fourth line in paragraph (2), change "makeing" to "making"



68. Page D-12-24, Line 19, delete comma after "for launch"
69. Page D-12-24, Line 22, read "Environmental Control Assembly" for "environmental control assembly"
70. Page D-12-24, Lines 22, 23, 25, 27, 28, 36, 37, 38, 40, 42, 43, and 44, "white room", delete quotation marks and capilatize "w" and "r".
71. Page D-12-24, Line 30, read "fueled" for "fueld"
72. Page D-12-24, Line 34, read "widespread" for "wide spread"
73. Page D-12-24, Line 41, read "its" for "it's"
74. Page D-12-25, Line 11, read "the" for "thr"
75. Page D-12-25, Lines 13, 17, 25, 26, 33, 36, 39, and 44, "white room", delete quotation marks and capitalize "w" and "r".
76. Page D-12-25, Line 30, read "the" for "te"
77. Page D-12-25, Line 30, read "reported" for "report"
78. Page D-12-26, Lines 1, 2, 5, 6, 7, 9, 10, 30, 39, and 42, "white room", delete quotation marks and capitalize "w" and "r".
79. Page D-12-26, Line 9, read "other persons" for "all others"
80. Page D-12-26, Line 16, read "floor" for "door"
81. Page D-12-26, Line 22, read "and" for "ans"
82. Page D-12-26, Line 34, delete comma after "shortly"
83. Page D-12-27, Lines 5, 7, 9, 10, 12, 19, 25, and 26, "white room", delete quotation marks and capitalize "w" and "r"
84. Page D-12-27, Line 4, read "Plugs Out Test" for "plugs out test"
85. Page D-12-27, Lines 10 and 12, read "mask" for "maks"
86. Page D-12-27, Line 19, read "at the White Room" for "at white room"
87. Page D-12-27, Line 31, read "This activity was stopped based upon the certain knowledge that the astronauts were dead, which was confirmed by physicians who had arrived at the Command Module, and that an....."

88. Page D-12-27, Line 37, read "bring" for "being"
89. Page D-12-27, Line 44, read "closest position to the Command Module" for "closest position to the "white room" in the Command Module"
90. Page D-12-28, Line 1, read "umbilical tower" for "Umbilical Tower"
91. Page D-12-28, Lines 5, 7, 10, 13, 14, 22, 25, 26, and 28, "white room", delete quotation marks and capitalize "w" and "r"
92. Page D-12-28, Line 2, Line 15, read "its" for "it's"
93. Page D-12-28, Line 30, delete comma after "detail"
94. Page D-12-28, Line 30, read "psia" for "pounds per square inch"
95. Page D-12-28, Line 36, insert "atmosphere" after "oxygen"
96. Page D-12-29, Line 1, read "accident" for "incident"
97. Page D-12-29, Line 14, read "He nevertheless" for "He, nevertheless,"
98. Page D-12-29, Line 15, "white room", delete quotation marks and capitalize "w" and "r"
99. Page D-12-31, Line 7, read "preceding" for "preceeding"
100. Page D-12-31, Line 11, read "accident" for "incident"
101. Page D-12-31, Lines 11, 13, and 15, delete "Board"
102. Page D-12-31, Line 20, read "accident" for "incident"
103. Page D-12-32, Line 2, read "accident" for "incident"
104. Page D-12-32, Line 4, read "sniff" for "s niff"
105. Page D-12-32, Line 10, read "accident" for "incident"
106. Page D-12-32, Lines 19 and 20, read "Thomas R. Baron, Donald O. Babbitt..." for "Thomas R. Baron (self-employed), Donald O. Babbitt..."

E R R A T A   S H E E T

Appendix D Panel 15  
204 Review Board Report  
Sheet No. 1 of 2

1. Page D-15-3, Paragraph B.2., Line 1, delete colon.
2. Page D-15-4, Paragraph (5) (c), read "CO<sub>2</sub>" for "CO2."
3. Page D-15-5, Paragraph (10), Line 1, read "indicates" for "indicated."
4. Page D-15-7, No. 5C, read "Testing" and "Support."  
No. 7A, read "Jurisdiction."
5. Page D-15-8, No. 25, read "Recess."
6. Page D-15-9, Paragraph: POLICY 2. for "full time" read "full-time."
7. Page D-15-10, Paragraph: POLICY - read "service structure, umbilical tower, AGCS room."
8. Page D-15-10, Under PROCEDURES AND RESPONSIBILITIES, begin second paragraph with 2. Make third paragraph read 3. instead of 1. Line up margin properly.  
  
In new paragraph 3. delete information following colon:  
"Authorize, in writing, access to the spacecraft areas of the service structure for purposes of photographing the spacecraft, or performing any work on the spacecraft."
9. Page D-15-10, New Paragraph 3 e. read "Maintain" for "Maintains."
10. Page D-15-10, New Paragraph 3 f. read "Brief" for "Briefs."
11. Page D-15-11, Paragraph 5.a., Line 1, for "provide" read "provided."
12. Page D-15-11 - Paragraph 5.b., read "patrolmen."
13. Page D-15-14, Paragraph POLICY 2., read "full-time."  
Page D-15-14, Paragraph POLICY 5., read "full-time."
14. D-15-17, Paragraph POLICY, Line 3, read "one-shift."
15. Page D-15-19, Paragraph 6, Capitalize initial letter in listing a., c., and d.
16. Page D-15-19, Paragraph 8, Line 3, read "off-site" for "off site."  
Page D-15-19, Paragraph 8, Line 5, read "on-site" for "on site."

17. Page D-15-20, Paragraph 9, Line 1/2, Change "concurrency by" to "the concurrence of."
18. Page D-15-21, Line 11, delete commas before and after "status."
19. Page D-15-22, Line 26, read "Quality" instead of "qualify."
20. Page D-15-37, Line 7, read "Propagation."
21. Page D-15-40, Line 12, change final comma to a period.
22. Page D-15-40, Line 29, read "(1)" instead of "3a."
23. Page D-15-40, Last line, read "Negatives."
24. Page D-15-60, Lines 16-17, insert parentheses beginning "who ... signature."
25. Page D-15-63, Line 13, delete "(IV)."
26. Page D-15-7, No. 4a, correct to read "Secretarial."  
No. 18c, correct to read "Test Preparation Sheets."

E R R A T A   S H E E T

Appendix D Panel 18  
204 Review Board Report  
Sheet No. 1 of 1

1. Page D-18-3, Line 14, insert "(MSC)"
2. Page D-18-3, Line 15, insert "(NAA)"
3. Page D-18-3, Line 16, insert "(KSC) NASA"
4. Page D-18-3, Lines 25 through 27, Panels (plural)...panels...  
panels ... (both lower case)
5. Page D-18-3, Line 30, insert "Apollo 204 Review" before Board
6. Page D-18-4, Lines 3 and 6, "provision" should be "presentation"
7. Page D-18-4, Line 12, remove comma after parenthesis
8. Page D-18-4, Line 17, change "activity" to "phase"
9. Page D-18-4, Line 18, change "fed" to "given"
10. Page D-18-4, Line 19, should be "Test Preparation Sheet (TPS)"  
(Enclosure 18-2) ..."
11. Page D-18-5, Line 18, insert "two" after "in"
12. Enclosure 18-42, Octopus.
13. Page D-18-20, Line 43, The "21" of 21:31:20 GMT should be "23".
14. Page D-18-21, Line 22, after "09.72" insert "GMT".
15. Page D-18-24, Line 30, change "was" to "were"
16. Page D-18-25, Line 3, add "and" after "interface"
17. Page D-18-25, Line 6, remove "equipment"
18. Page D-18-34, Line 22, after the word "considered," insert  
"as a source. An"
19. Page D-18-41, Line 18, read "Enclosure 18-34" instead of  
"Enclosure 18-35:"

ERRATA SHEET

Appendix D Panel 19-20  
204 Review Board Report  
Sheet No. 1 of 1

1. Page D-19-3, Line 24, Delete comma following "Commander" and insert a period.
2. Page D-20-3, Line 40, Read "Direct O<sub>2</sub> valve."
3. Page D-20-5, Line 8, Read "altitude" instead of "alittude."
4. Page D-20-6, Line 26, Read "and with the combustible materials."
5. Page D-20-6, Line 27, Read "valve was open to vacuum to simulate orbital flight and functioned at approximately."
6. Page D-20-6, Line 28, delete hyphen before "Y", insert a minus sign instead.
7. Page D-20-6, Line 37, Read "a fire under test conditions."

ERRATA SHEET

Appendix E  
204 Review Board Report  
Sheet No. 1 of 2

1. Page E-18, Line 47, last word, utilization.
2. Page E-23, Line 14, Flight Crew Director.
3. Page E-28, Line 2, delete "and included as enclosures."
4. Page E-28, Line 5, reference should be to Page E-27, not enclosure 1.
5. Page E-29, last line, delete "integ".
6. Page E-30, delete reference to enclosure.
7. Page E-31, Director of Design Engineering, reference in paragraph 4. should be to U.S. Army Corps of Engineers. Add the following paragraph 5.  

"5. Establish within the Directorate a uniform and consistent program for configuration management, reliability, QA, logistics, and system engineering based on prescribed guidelines."
8. Page E-45, Paragraph b. Read, "Procuring launch vehicles . . ."
9. Page E-45, Paragraph f. Read, "Providing flight ready . . ."
10. Page E-45, Paragraph k. Read, "of" for "or".
11. Page E-47, Paragraph 9. Read, "Establishes" for Established."
12. Page E-48, Paragraph 12. Read ". . . negotiation, pre-award, award . . ."
13. Page E-50, Engine Program Office, Responsibility, Paragraph 3, read "Directs."
14. Page E-57, Paragraph 1, delete reference to Chart "X".
15. Page E-57, Paragraph IB, subparagraph 2, third sentence should read, "The Director of Quality and Reliability Assurance is responsible to the Program Manager in technical matters although reporting administratively to the S&ID Director of Quality and Reliability Assurance." Same subparagraph, line 6, insert comma after words Florida Facility.
16. Page E-58, reference throughout should be to S&ID instead of as printed.
17. Page E-58, fourth line, read "fabricate."
18. Page E-58, Paragraph III B., subparagraph 1., second line, read "individual."

E R R A T A S H E E T

Appendix F  
204 Review Board Report  
Sheet No. 1 of 1

1. Preface, Line 4, should be "Review Board."
2. Preface, Line 2, change "were" to "was" to agree with collective subject "all."
3. PF-21, Item 0057, Col. 4
  - a. "No Constraints;" should be "constraints."
  - b. ... "S/C 017 Testing;" should be "testing."
  - c. "Needed One Week Prior;" should be "Needed one week prior."
4. PF-24, Item 0070, Col. 3, No. 2, "Disconnect but...;" should be "Disconnected."
5. PF-24, Item 0071, Col. 3, No. 2, "Disconnect" should be "Disconnected."
6. PF-25, Item 0078, Col. 4, should be "Turn whole book over to Panel 6."
7. PF-26, Item 0082, Col. 2; should be "millimeter."
8. PF-26, Item 0084, Col. 4; should be "Turn whole book over to Panel 6."
9. PF-33, Item 0120, Col. 3; should be Loc: Level A-8 +Z+Y Axis."
10. PF-33, Item 0124, Col. 3; should be "(Relevance to accident - None)."
11. PF-34, Item 0127, Col. 3, Line 5; should be "entrance.) Not located in white."  
Line 7; should be "8A level of service structure."
12. PF-35, Item 0128, Col. 2, Line 5; should be "Following items, is not to be."



19. Page E-59, reference throughout should be to S&ID instead of as printed.
20. Page E-59, Paragraph E. subparagraph 3, last line, read "Pratt & Whitney."
21. Page E-63, second line, read "Included" at beginning of second sentence.
22. Page E-62, last line, read "inter-center working relationships."
23. Pages E-64 and E-66, delete in their entirety, substituting Attachment 1 of this Errata Sheet.
24. Page E-83, delete material following first paragraph, and substitute the following table:

Major Contractual Phases are:

Time Period	Contract Type	Prime Document
21 Dec 61 - 13 Aug 63	Letter	Letter Contract NAS 9-150
21 Dec 61 - 2 Oct 65	CPFF	Contract NAS 9-150
3 Oct 65 - 3 Dec 66	CPIF	S/A 115 to NAS 9-150
4 Dec 66 - Onward	Letter	S/A 220 to NAS 9-150

25. Page E-83, read \$ for % wherever it appears.
26. Page E-84, delete line 7.
27. Page E-85, line 19, read Exhibit.
28. Page E-85, delete line 43.
29. Page E-86, delete lines three and four.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

KSC-MS C APE RELATIONSHIPS<sup>1</sup>

(Chapter 35 of Apollo Spacecraft Management Guide, effective April 1, 1966)

This paper establishes the overall policy and relationships which shall exist between MSC and KSC for those spacecraft activities occurring at the Cape. The following relationship shall exist:

1. MSC shall be responsible for the determination and control of the configuration of the spacecraft and all spacecraft contractor-supplied CSE, including ACE. MSC shall be responsible for approval of all changes in configuration.

2. MSC shall establish overall checkout standards and plans. These standards and plans shall set the broad parameters for checkout and inspection for all spacecraft checkout from the factory through Cape checkout. MSC shall establish detailed factory checkout procedures; KSC shall review and advise MSC on these procedures. KSC shall develop Cape checkout plans for review and approval by MSC as a part of the overall spacecraft checkout plan; KSC shall develop detailed checkout procedures for MSC review and concurrence. No checkout procedures shall be adopted which are not concurred in by MSC.

3. MSC shall conduct technical reviews, inspections, and checkout acceptance activities at the spacecraft contractors' plants; KSC shall provide checkout personnel to serve as observers and advisors; KSC shall conduct detailed Cape checkout of spacecraft, securing MSC approval of necessary performance and checkout procedure waivers or inspection deviations; KSC shall conduct the actual countdown and launch activities. This includes direction of those MSC spacecraft contractor personnel engaged in preflight checkout activities at the Cape.

4. MSC shall provide to KSC performance data, systems or sub-systems specifications, or test results which are needed or requested by KSC.

5. MSC shall provide data requirements for format and/or reduction requirements for pre-mission, real-time mission support, or post-mission evaluation.

6. MSC shall determine the disposition and place of failure analysis of all failed components after removal from the spacecraft; KSC shall conduct failure analyses as requested by MSC and make recommendations for corrective action as applicable.

---

<sup>1</sup>These arrangements relate to all KSC-MS C relationships for activities conducted at MILA and the ETR.

7. MSC shall retain responsibility for all astronaut activities; KSC shall provide necessary housing and logistical support as required.

8. MSC shall prepare all on-board experiments which are intimately associated with the astronaut; KSC shall prepare those experiments intimately associated with the spacecraft.

9. KSC shall participate as a Board Member of the Acceptance Review Board in conducting formal pre-delivery reviews of spacecraft at the contractors' plants and on the MSC Spacecraft Readiness Review Board; MSC shall participate as a Board Member in launch readiness reviews and shall participate in preflight and post-launch debriefings of launch crews conducted by KSC. MSC shall conduct necessary post-mission tests of spacecraft.

10. MSC shall establish minimum readiness specifications or lift-off rules for spacecraft systems; KSC shall conduct necessary integrated space vehicle checkouts.

11. KSC shall provide MSC such administrative and housekeeping support for personnel assigned to the MSC Resident Offices as may be necessary.

12. KSC shall serve as the agent of MSC in conducting Gemini spacecraft checkout, inspection, and testing at the Cape. This function shall be delegated to the Deputy Director for Launch Operations, KSC, who shall be directly responsible to MSC for these activities. The Directors, KSC and MSC, shall periodically discuss any problems which may arise relating to staffing levels assigned to the Gemini Program. (This arrangement shall be reviewed prior to GT-6.)

13. KSC shall make the KSC Deputy Director for Launch Operations available to function as the agent for MSC in providing local direction (at the Cape) to the Air Force 6555th Test Wing in its preparation, checkout, and launch of the Gemini launch vehicle and the Atlas-Agena target vehicle.

APPROVED:

(Original Signed by Robert R. Gilruth)  
Robert R. Gilruth, Director  
Manned Spacecraft Center

December 21, 1964  
Date

(Original Signed by Kurt H. Debus)  
Kurt H. Debus, Director  
John F. Kennedy Space Center

December 21, 1964  
Date

MOST EXPEDITIOUS MANNER, TWX, OR TELEPHONE. THE COGNIZANT CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING ALL CHANGES IN ACCORDANCE WITH THE APOLLO SPACECRAFT PROGRAM OFFICE "APOLLO CONFIGURATION MANAGEMENT MANUAL, MSC SUPPLEMENT NO. 1 (TO NPC-500-1), EXHIBIT IX".

- E. PROVIDE TO MSC-ASPO DAILY STATUS REPORTS ON APOLLO SPACECRAFT WORK, INCLUDING OVERALL SCHEDULE PERFORMANCE COMPLIANCE, EO'S WORKED, AND OTHER PERTINENT PROGRAM INFORMATION.
  - F. KSC SHALL PROVIDE FACILITIES AND GENERAL SERVICE FOR THE MSC PERSONNEL, SUCH AS PROJECT AND SYSTEMS ENGINEERS, GSE, SITE ACTIVATION, QUALITY, CHECKOUT, AND SUBSYSTEM MANAGERS ASSIGNED BY ASPO TO SPECIFIC HARDWARE OR FUNCTIONS THAT ARE BEING HANDLED BY KSC FOR MSC. KSC SHALL PROVIDE INTERNAL WORKING INTERFACE ARRANGEMENTS FOR THESE INDIVIDUALS IN SUPPORT OF THE ACCOMPLISHMENT OF THE TASKS.
3. A MORE DETAILED LEVEL OR ASSIGNED RESPONSIBILITY IS CONTAINED IN THE FOLLOWING LIST. THE NOTATION "KSC" INDICATES THOSE ACTIVITIES IN WHICH RESPONSIBILITY FOR PRIMARY ACCOMPLISHMENT IS DELEGATED TO KSC, PLANS, PROGRAMS, AND RESOURCES; THE NOTATION "MSC" INDICATES THAT PRIMARY RESPONSIBILITY IS TO REMAIN WITH MSC (ASPO); AND THE NOTATION KSC/MSC REFERS TO THOSE ACCOMPLISHMENTS IN WHICH RECIPROCAL ACTIVITIES ARE REQUIRED.

PROPOSED  
APOLLO SPACECRAFT PROGRAM OFFICE  
KSC OPERATIONS MANAGEMENT PLAN

1. GENERAL:

THE KSC-MSC RELATIONSHIP SIGNED BY DR. K. DEBUS AND DR. R. GILRUTH ON DECEMBER 21, 1964, ASSIGNS CERTAIN RESPONSIBILITIES TO MSC FOR THE APOLLO SPACECRAFT OPERATION AT KSC. IT IS THE PURPOSE OF THIS PLAN TO DELEGATE A LIMITED NUMBER OF THESE RESPONSIBILITIES TO KSC FOR EXECUTION AND TO DELINEATE OTHER OF THESE RESPONSIBILITIES THAT KSC SHALL REFER TO MSC-ASPO FOR ACTION.

2. RESPONSIBILITIES DELEGATED TO KSC, PLANS, PROGRAMS, AND RESOURCES OFFICE:

- A. PROVIDE THE INTERFACE WITH THE MSC APOLLO SPACECRAFT PROGRAM OFFICE MANAGER FOR ACTIVITIES AT KSC INVOLVING SUPPORT OF THE APOLLO SPACECRAFT PROGRAM.
- B. ACCOMPLISH TECHNICAL MANAGEMENT OF ASPO CONTRACTOR(S) AT MSC WITHIN THE SCOPE OF DEFINED CONTRACTOR TASKS AND COORDINATE WITH THE APPROPRIATE ASPO PROJECT OFFICER IN THE ACCOMPLISHMENT OF THE CONTRACT WORK STATEMENT AMENDMENTS AND/OR RESOURCE CHANGES REQUESTED BY MSC TO ACCOMPLISH APOLLO SPACECRAFT TASKS.
- C. PROVIDE APPROPRIATE ASPO CONTRACTOR PERFORMANCE REVIEWS TO MSC.
- D. BE RESPONSIBLE FOR THE CONFIGURATION MANAGEMENT OF THE APOLLO SPACECRAFT, GSE, AND ACE AT KSC IN ACCORDANCE WITH THE SPECIFICATIONS FURNISHED WITH THE DELIVERY OF THE EQUIPMENT AND MSC APOLLO CCP OR CCB DIRECTIVES. CHANGES IN THIS ESTABLISHED CONFIGURATION INITIATED AT KSC, INCLUDING COMPATIBILITY OR MAKE WORK, SHALL BE REFERRED TO THE CHAIRMAN OF THE COGNIZANT MSC SPACECRAFT CONFIGURATION CONTROL PANEL FOR APPROVAL ACTION. ACTION ON THESE CONFIGURATION CHANGES SHALL BE HANDLED IN THE

MOST EXPEDITIOUS MANNER, TWX, OR TELEPHONE. THE COGNIZANT CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING ALL CHANGES IN ACCORDANCE WITH THE APOLLO SPACECRAFT PROGRAM OFFICE "APOLLO , CONFIGURATION MANAGEMENT MANUAL, MSC SUPPLEMENT NO. 1 (TO NPC-500-1), EXHIBIT IX".

- E. PROVIDE TO MSC-ASPO DAILY STATUS REPORTS ON APOLLO SPACECRAFT WORK, INCLUDING OVERALL SCHEDULE PERFORMANCE COMPLIANCE, EO'S WORKED, AND OTHER PERTINENT PROGRAM INFORMATION.
  - F. KSC SHALL PROVIDE FACILITIES AND GENERAL SERVICE FOR THE MSC PERSONNEL, SUCH AS PROJECT AND SYSTEMS ENGINEERS, GSE, SITE ACTIVATION, QUALITY, CHECKOUT, AND SUBSYSTEM MANAGERS ASSIGNED BY ASPO TO SPECIFIC HARDWARE OR FUNCTIONS THAT ARE BEING HANDLED BY KSC FOR MSC. KSC SHALL PROVIDE INTERNAL WORKING INTERFACE ARRANGEMENTS FOR THESE INDIVIDUALS IN SUPPORT OF THE ACCOMPLISHMENT OF THE TASKS.
3. A MORE DETAILED LEVEL OR ASSIGNED RESPONSIBILITY IS CONTAINED IN THE FOLLOWING LIST. THE NOTATION "KSC" INDICATES THOSE ACTIVITIES IN WHICH RESPONSIBILITY FOR PRIMARY ACCOMPLISHMENT IS DELEGATED TO KSC, PLANS, PROGRAMS, AND RESOURCES; THE NOTATION "MSC" INDICATES THAT PRIMARY RESPONSIBILITY IS TO REMAIN WITH MSC (ASPO); AND THE NOTATION KSC/MSC REFERS TO THOSE ACCOMPLISHMENTS IN WHICH RECIPROCAL ACTIVITIES ARE REQUIRED.

E R R A T A S H E E T

Appendix B  
204 Review Board Report  
Sheet No. 1 of 1

1. Page B-5, entry 8, fourth column, Line 1, change "200" to "220."
2. Page B-7, entry 36, fourth column, Line 2, change "LCC" to "LC."
3. Page B-7, entry 39, fourth column, change "LCC" to "LC."
4. Page B-10, fifth entry, third column, Line 2, change "LCC" to "LC."
5. Page B-15, first entry, fourth column, add "34" after "LC."
6. Page B-15, twelfth entry, fourth column, delete apostrophe after "70" and add " - foot" after "60."
7. Page B-25, fifteenth entry, fourth column, delete apostrophe after "27" and add " - foot" after "27."
8. Page B-28, thirteenth entry, fourth column, Line 2, delete apostrophe after "152" and add " - foot" after "152."

PANEL 1

Page D-1-5, line 11, pertinent spelled wrong

PANEL 2

Page D-2-4; under 3, Vehicle Test Comparison; 3rd line, should read:  
"30 minutes of testing"

Page D-2-8; under 2. Finding - correct  
water ethylene to "water/ethylene"

Page D-2-25; line 9, correct spelling to untreated

PANEL 3

Page D-3-4; line 5 from bottom; time should read "22:38 GMT"

Page D-3-38; paragraph (a) 4. - second line, 41.2 kilo-bit should be "51.2"

Page D-3-42; C A5484 - under Low, should read 0; under Data Range High,  
should read +150

Page D-3-45; C G2140, under Units delete PSA

Page D-3-45; C H0047, under Units - MANP should be "MAMP"

Page D-3-46; C H0100, under Low - should be "OFF"; under High - should be  
"ON"; under Units - should be "EVENT"

Page D-3-46; C H0101, under High - change "ONN" to "ON"

Page D-3-46; C H3186, under High - should be "+13K"

Page D-3-46; C H4100, under High - should be +12; under Units - should  
be VAC

Page Page D-3-48; B S0040, under Low - should read "OFF"; under High -  
should read "ON"; under Units - should read "EVENT"

Page D-3-46; C H1074, under High - should read +25

Page D-3-48; C T0128, under Low - should read "0"

Page D-3-48; C T0191, unable to read High and Unit column - should read -  
"-110 and DBM"

Page D-3-49; b.(1)(a) sentence deleted - The sequential system was in  
launch configuration with the following exceptions:

Page D-3-49; Under (2), third paragraph - "02" should read "0<sub>2</sub>"

Page D-3-49; Under (2), fourth paragraph - second sentence deleted -  
At 23:31:26.716 GMT EDS "unsafe B: came on."



PANEL 3 (cont'd)

Page D-3-50; Under (2), third paragraph, last sentence not complete - should read, "The switches used to accomplish this (panel 22 - main bus tie Bat A&C and main bus tie Bat B&C) were found during post-incident inspection to be in the positions that would connect these batteries to the main buses."

Page D-3-53; (2) (a), Sentence should read "At 23:30:54.85 GMT"

Page D-3-53; (2) (a), Second paragraph, last two sentences should read, "At the same time, small transients were noted on the pitch and yaw rotation control output (see Figure 4.5-1). The rotation control output measurements are proportional to the amount and direction of controller position."

Page D-3-56; f.(1)(d), last sentence - change "02" to "0<sub>2</sub>", two places.

Page D-3-56; f.(2), first sentence - change 02 to "0<sub>2</sub>"

Page D-3-60; g.(1)(c), flight space should read "flight spare"

Page D-3-65; paragraph heading H. should be "h."

Page D-3-65; i(1), GN2 should read "GN<sub>2</sub>", two places

Page D-3-66; (4)(a) first sentence should read 23:31:22.432 instead of 23:31:22:432

Page D-3-66; j(2) fourth sentence should read - "These noise spikes are believed to be caused by RFI, which has been duplicated during post-incident bench test by imposing transients on the input power."

E R R A T A      S H E E T

Appendix D Panel 5  
204 Review Board Report  
Sheet 1 of 1

1. Page D-5-3, Line 3, Comma after "chemical analyses"
2. Page D-5-3, Line 26, Remove comma after "fire"
3. Page D-5-5, Line 28, Word "defeated" should be "defected"
4. Page D-5-6, Line 14, Delete comma and word "photograph" after "hatch"
5. Page D-5-7, Line 27, Remove comma after "structure"
6. Page D-5-7, Line 40, Period at end of sentence
7. Page D-5-8, Line 27, aluminum
8. Page D-5-9, Line 23, Read "5-29" instead of "5-20"
9. Page D-5-13, Line 44, conditions
10. Page D-5-15, Line 51, Delete comma after "had"

ERRATA SHEET

Appendix D Panel 8  
204 Review Board Report  
Sheet No. 1 of 2

1. Page D-8-7, Line 1, "Table C-4," should be "Table 4."
2. Page D-8-7, Line 5, (Function Column), "Insulation" should be "insulation."
3. Page D-8-7, Line 10, (Function Column), "Net" should be "net."
4. Page D-8-7, Line 16, (Function Column), "Compartments" should be "compartments."
5. Page D-8-7, Line 11, (Material Column), "oxford cloth" should be "Oxford Cloth."
6. Page D-8-7, Line 17, (Function Column), "Window" should be "window."
7. Page D-8-7, Line 13, (Material Column), "Nylon cord" should be "Nylon Cord."
8. Page D-8-7, Line 14, (Material Column), "Nylon tape" should be "Nylon Tape."
9. Page D-8-7, Line 24, (Function Column), "OCP Note paper" should be "OCP note paper."
10. Page D-8-7, Line 29, (Function Column), "ECS Line insulation" should be "ECS line insulation."
11. Page D-8-7, Line 19, (Material Column), "Silicone foam" should be "Silicone Foam."
12. Page D-8-7, Line 20, (Material Column), "Cotton cloth" should be "Cotton Cloth."
13. Page D-8-7, Line 22, (Material Column), "Nomex fabric" should be "Nomex Fabr."

E R R A T A S H E E T

Appendix D Panel 8  
204 Review Board Report  
Sheet No. 2 of 2

14. Page D-8-8, Line 3, "Nonmetallic Materials Status" should be upper case.
15. Page D-8-8, Last Line, "(ref. 8-33 and 8-91)" should be "(Ref. 8-33 and 8-91)."
16. Page D-8-9, Line 31, " $10^{-5}$  lb in<sup>2</sup>" should be  $10^{-5}$  lb/in<sup>2</sup>."
17. Page D-8-11, Line 33, "or organic" should be "of organic."
18. Page D-8-13, Line 34, "case. Namely," should be "case; namely,"
19. Page D-8-15, Line 26, "even samples" should be "even on samples."
20. Page D-8-27, Items 1 and 3 in the TYPE Column:  
  - "n-CF<sub>2</sub>-CFCl" should be "n-CF<sub>2</sub>-CFCl"
  - "n-CF<sub>2</sub>-CF<sub>2</sub>Cl-n" should be "n-CF<sub>2</sub>-CF<sub>2</sub>Cl-n"
21. Page D-8-29, Line 4, "tion," 6.5.)" should read "tion," 6.b.)"
22. Page D-8-35, Line 40, "8-6 C/M 012 p Pressure" should be "8-6 C/M 012 Pressure."
23. Page D-8-35, Line 45, "on Aft Bulkhead % Hatch" should be "on Aft Bulkhead & Hatch."
24. Page D-8-35, Line 50, "(Neg, No. 216-467C-6)" should be "(Neg. No. 216-467C-6)."
25. Page D-8-85, Item 8-7, Line 2, "December 28, 1967" should be "December 28, 1966."
26. Page D-8-85, Items "8-19 & 8-18" are reversed.
27. Page D-8-86, Item 8-44, Line 2, "February 18, 1967" should be "February 28, 1967."
28. Page D-8-87, Item 8-84, Line 3, "No. 99-0058" should be "No. 999-0058."

ERRATA SHEET

Appendix D Panel 9  
204 Review Board Report  
Sheet 1 of 1

1. Page D-9-10, Line 37, Delete semicolon following "system", insert comma instead
2. Page D-9-10, Line 42, Delete semicolons following "encountered" and "network", insert commas instead
3. Page D-9-10, Line 45, delete "incident", insert "accident" instead
4. Page D-9-29, Line 6, delete "ect", insert "etc." instead
5. Page D-9-29, Line 7, read " $5.6 \times 10^{-6}$ "
6. Page D-9-29, Line 17, read "0.035 inch"
7. Page D-9-29, Line 36, Delete "twenty" insert "20" instead
8. Page D-9-29, Lines 39 through 46, delete exclamation marks and insert closed brackets (]) instead
9. Page D-9-29, Line 39, read " $N_2O_4$ "
10. Page D-9-29, Line 41, read "Optimum"
11. Page D-9-29, Line 47, read " $N_2O_4$ "
12. Page D-9-30, Lines 5, 13, 20, 24, 28, 34, 40, Delete exclamation marks and insert closed brackets (]) instead
13. Page D-9-31, Line 2 read (OH)3
14. Page D-9-31, Lines 7, 10, 11, 19, Delete exclamation marks and insert closed brackets (]) instead
15. Page D-9-31, Line 10, insert a period following "pounds"
16. Page D-9-31, Line 20, read " $10^{-6}$ "
17. Page D-9-31, Line 24, read " $3.54 \times 10^{-7}$  and  $1.27 \times 10^{-7}$ "
18. Page D-9-31, Line 25, read " $10^{-6}$ "

- 577. Page A-86, Last line, read "11:30 a.m." for "11:30"
- 578. Page A-87, Line 20, read "Spacecraft" for "spacecraft"
- 579. Page A-87, Line 26, read "action" for "aOtion"
- 580. Page A-87, Line 29, read "Item 155 is to" for "155 is"
- 581. Page A-87, Line 30, read "harness, suit" for "harness, suits"
- 582. Page A-87, Line 31, insert comma after "harness" and before "and"
- 583. Page A-87, Line 33, read "Item 156 - following 155 - " for "Item 156 - Following 155,"
- 584. Page A-87, Line 35, read "is to perform" for "is perform"
- 585. Page A-87, last line, insert "the" before "Manned"
- 586. Page A-88, Line 8, read "Government" for "government"
- 587. Page A-88, last line, read "11:31 a.m." for "11:31."
- 588. Page A-89, Line 8, "of the panels. This" should be "of the Panels. This"
- 589. Page A-90, Line 13, "today is 163," should be "today are 163,"
- 590. Page A-90, Line 18, "service module" should be "Service Module"
- 591. Page A-90, Line 20, "the reasis to" should be "the reason is to"
- 592. Page A-90, Line 23, "if installed" should be "if the installed"
- 593. Page A-90, Line 27, "presented Mr." should be "presented by Mr."
- 594. Page A-90, Line 30, "DEPUTY" should be "Deputy"
- 595. Page A-90, Line 32, "meeting I" should be "meeting, I"
- 596. Page A-91, Line 8, "Yes, we" should be "We"
- 597. Page A-91, Line 22, "Item 128, I'd" should be "Item 128. I'd"
- 598. Page A-91, last line, "test and" should be "tests and"
- 599. Page A-93, Line 11, "spacecraft" should be "Spacecraft"
- 600. Page A-93, Line 13, "reason to investigate" should be "the reason is to investigate"
- 601. Page A-93, Line 17, "The reason, to" should be "The reason; to"
- 602. Page A-93, Line 20, "action - the interior" should be "action regarding the interior"
- 603. Page A-93, Line 24, "Disassembly Plan as to when" should be "Disassembly Plan and when"
- 604. Page A-93, Line 35, "Panels orerating" should be "Panels are operating"

605. Page A-95, Line 5, "Thin we found over the weekend, Friday evening in ..." should be "Thing, we found over the weekend, on Friday evening. In..."
606. Page A-95, Line 33, "menagage..." should be "manage"
607. Page A-96, Line 4, "The discussion ha brought" should be "This discussion brought"
608. Page A-96, Line 7, "possible, the" should be "possible. The"
609. Page A-97, Line 3, "there approved" should be "therefore approved."
610. Page A-99, Line 15, "qualibying" should be "qualifying"
611. Page A-99, Line 30 "command module" should be "Command Module"
612. Page A-100, Line 2, "power supposedly," should be "power,..."
613. Page A-100, Line 3, "conditions, circuit breaker" should be "conditions. The Circuit breaker"
614. Page A-100, Line 4, "physically in, and was found" should be "was found"
615. Page A-100, Line 13, "spacecraft" should be "Spacecraft"
616. Page A-100, Line 24, "submitted. Only" should be "submittal. There is only..."
617. Page A-100, Line 25, "and this is discussed" should be "and this was discussed."
618. Page A-100, Line 36, "summarize, first on" should be "summarize; the first is on"
619. Page A-102, Line 10, "packages, we" should be "packages; we"
620. Page A-102, Line 20, "We reviewed 8" should be "We have reviewed only 8"
621. Page A-102, Line 27, "people we" should be "people were"
622. Page A-102, Line 31, "Category A, ECS stuff, there" should be "Category A, there"
623. Page A-102, Line 34, "stay there, the" should be "stay there, also, the..."
624. Page A-103, Line 22, "on 7 March; No. 150" should be "on 7 March 150"
625. Page A-103, Line 24, "spacecraft" should be "Spacecraft"
626. Page A-103, Line 25, "craft 17" should be "craft 017"
627. Page A-103, Line 35, "electrical ring-out;" should be "electrical check"
628. Page A-104, Line 1, "wire ring out" should be "wire checking"

629. Page A-104, Line 2, "spacecraft" should be "Spacecraft"
630. Page A-104, Line 9, "rema ining" should be "remaining"
631. Page A-104, 4th line from bottom, "propogation combustion" should be "propogation and combustion"
632. Page A-106, 2nd line from bottom, "items, toe plate" should be items: toe plate"
633. Page A-107, Line 9, "I woule" should be "I would"
634. Page A-107, 5 lines from the bottom, "statements by re -" should be "statements be re -"
635. Page A-108, line 3, "except hose" should be "except those"
636. Page A-108, Line 16, "spacecraft" should be "Spacecraft"
637. Page A-108, Line 22, "the ring-out of the cables taken place" should read "the testing of the cables takes place"
638. Page A-107, Line 27, "so far, a total of 179." should be "so far is 179."
639. Page A-110, Lines 13 and 14, "I would say, and we are about at the stage of, I would say, more" should be "I would say, more"
640. Page A-110, Line 21, "TPS's (work orders) to" should be "TPS's to"
641. Page A-111, Line 10 and 11, "these items are describing the condition." should be "these items."
642. Page A-111, Line 16, "Item 180," should be "Item 180:"
643. Page A-111, Line 18, "Item 179," should be "Item 179:"
644. Page A-111, Line 20, "This technique utilized on Action Item 178 which was," should be "This technique was utilized on Action Item 178 which was:"
645. Page A-111, Line 23, "distributions" should be "distributed"
646. Page A-112, Line 22, "Item 181," should be "Item 181:"
647. Page A-112, Line 25, "Item "The reason is" should be "The reason is:"
648. Page A-112, Line 26, "Item 182," should be "Item 182:"
649. Page A-112, Line 27, "The reason," should be "The reason:"
650. Page A-114, Line 7, "panel" should be "Panel"
651. Page A-114, Line 12, " and 11" should be "and 11"
652. Page A-116, Line 14, "these pacts," should be "these parts,"



- 653. Page A-117, Line 23, "Board Review" should be "Review Board."
- 654. Page A-117, Line 35, "States Inverter" should be "Static Inverter"
- 655. Page A-118, Line 14, "900 pis" should be "900 psi"
- 656. Page A-120, Line 38, "Spacecraft 12" should be "Spacecraft 012"

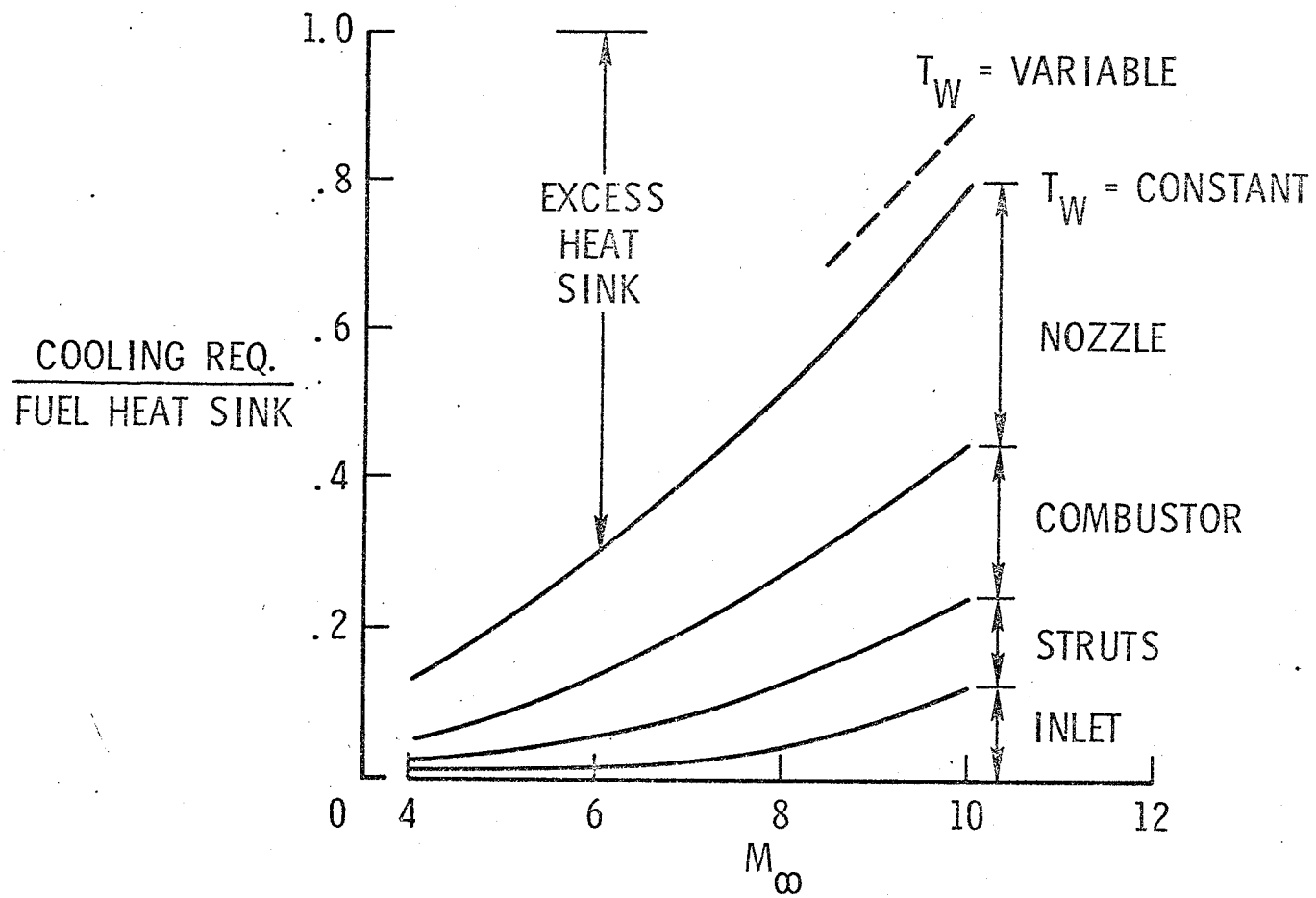


Figure 23.- Langley Scramjet cooling required.  $q_\infty = 47.9 \text{ kN/m}^2$  (1000 psf),  $\phi = 1.0$ .

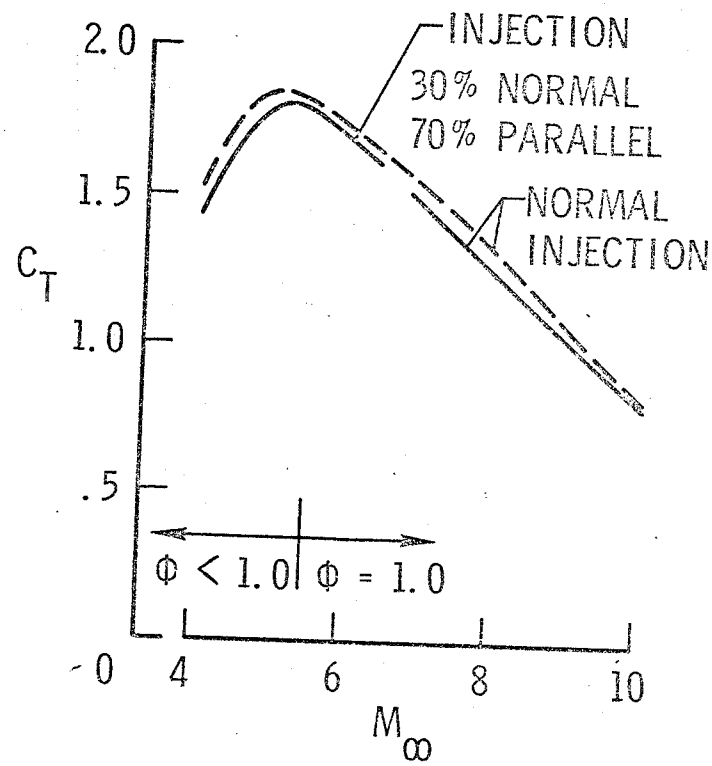
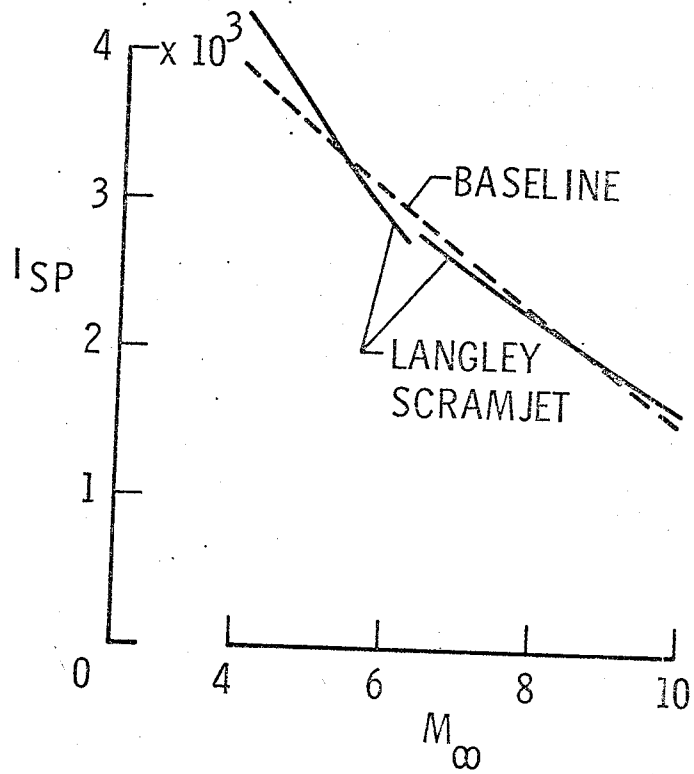


Figure 24.- Performance prediction.

## REFERENCES

1. Baldwin, H.A., "Long Range Radio Tracking of Sea Turtles and Polar Bear--Instrumentation and Preliminary Results," Proceedings, Symposium on Animal Orientation and Navigation, Wallops Island, Va., NASA Publication SP 292.
2. Terman, F. E., Radio Engineers' Handbook, McGraw-Hill, 1943.
3. Reference Data for Radio Engineers, 5th Edition, Howard W. Sams and Co., 1968, pg. 27-3.
4. World Distribution and Characteristics of Atmospheric Radio Noise, CCIR Report 322, 10th Plenary Assembly, Geneva, 1963.
5. Dome, R. "A Study of the DRRR Antenna," QST, pg. 27-31, July 1972.